BOOK
OF
INSTRUCTIONS

WORKS DEPARTMENTS
Westinghouse Electric & Manufacturing Company
East Pittsburg, Pa.

BOOK OF INSTRUCTIONS

WORKS DEPARTMENTS

WESTINGHOUSE ELECTRIC & MFG. CO.

COVER NO. 94

ISSUED TO Foreman, J. Pyles
Section "L-3".

THE INSTRUCTIONS CONTAINED IN THIS COVER ARE TO BE USED EXCLUSIVELY BY YOURSELF AND THOSE UNDER YOUR IMMEDIATE JURISDICTION WHO MAY HAVE OCCASION TO USE THEM. THEY ARE THE PROPERTY OF THE COMPANY AND ARE ISSUED WITH THE UNDERSTANDING THAT THEY WILL BE RETURNED UPON DEMAND.

THIS SET IS CHARGED TO YOU AND MUST NOT BE TRANSFERRED.

BOOK OF INSTRUCTIONS

FOR THE USE OF

WORKS DEPARTMENTS

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WESTINGHOUSE ELECTRIC & MFG. COMPANY

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INSTRUCTIONS No. 1

General Shop Rules, Check Employees,
Monthly Employees, Passes.

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GENERAL SHOP RULES

Foremen's Duties at Starting and Closing Hours:

Proper attention must always be given by the Foremen to correcting the tendency of the men to stop work before the regular quitting time at noon and at night in order to wash and clean up. Foremen must be on the floor of their Department for ten minutes after the blowing of the starting whistle and 15 minutes before the quitting time. In order to do this they are permitted to wash up prior to 15 minutes before the quitting time. Foremen will be held strictly accountable for getting their Department to work promptly after the starting whistle and keeping them in work until quitting time, and are authorized to lay off or discharge employees who persist in violating this regulation. Those who are habitually late must be laid off or discharged, as the case may warrant.

Hours for Work:

The working hours for regular workmen are as follows:

	From	Until	From	Until
All Days–except Saturdays	7:00 a.m. 7:00 a.m.	12:00 noon 12:15 p.m.	12:45 p.m.	5:30 p.m. 4½
Pay Days Night Turn	7:00 a.m. 6:00 p.m.	12:00 noon 12:00 a.m.	12:30 p.m. 12:30 a.m.	5:15 p.m. 6:00 a.m.

Pay Days:

Check employees will be paid twice per month, on the 8th and 23rd of each month, unless these dates fall on a Saturday, Sunday or Legal Holiday, ~~in which case~~ the pay day ~~is~~ on the following Monday or the day following the Legal Holiday. will be

falling

Tuesday instead of friday

Monthly employees will be paid on the last working day of the month.

Foremen and Assistant Foremen must be on hand to identify their men as they are being paid off. General Foreman must make arrangements to have a clerk from his Section to assist the Paymaster when paying off.

Employees who are absent on account of sickness or other legitimate cause can obtain their wages by addressing a written communication to the General Foreman of their Section authorizing the Company to pay the money to some person whom they may name. General Foremen in all cases should exercise their judgment as to the desirability of making the payment,

and should ascertain the genuineness of the signature before countersigning the request.

In case an employee is absent on the regular pay day he can receive his wages by applying to the Paymaster between 12:00 and 12:40 the following day. If, however, he has been laid off temporarily for a period in which a pay day occurs, before leaving he should be given a Pay Day Pass, Form P-2596, which will admit him to the Works on pay day.

The Checkers must accompany the Paying Clerks at the several paying stations in the Works back to the Pay Master's office in the Office Building before leaving them.

Checks and Check Boards:

Foremen must see that check boards are locked immediately after the blowing of the whistle at starting time, and that they are not unlocked until about two minutes before quitting time.

Detailed instructions on above heading are included in INSTRUCTIONS No. 7.

Overtime Work:

When men are to work overtime in any department, provision must be made for a Foreman or an Assistant Foreman to remain until these men have completed their work and left the Factory. In cases where there is a regular night turn and night turn Foreman it will be necessary for the day Foreman to remain with overtime men, unless the night Foreman can devote sufficient time to the overtime force to insure their working to advantage.

A Foreman or Assistant Foreman should be on the floor every Saturday afternoon to see that janitors and sweepers clean the Departments properly and expeditiously. A schedule of dates for each Foreman and Assistant Foreman should be arranged by the General Foreman.

Foremen must discourage the practice of men who work overtime being cleaned up and at the Watchman's door at the hour shown on their passes for quitting work.

Plan for training shop apprentices—See INSTRUCTIONS No. 5.

Washing Up:

No time will be allowed check employees for washing before quitting time. They are expected to work up to quitting time.

Employees are not permitted to use oil for washing.

Monthly men are allowed time to wash, but they must be back in their departments for the last ten minutes before the whistle blows.

Smoking:

No smoking is permitted within the Works.

Meal Tickets:

When necessary for monthly men to work overtime, the Company will furnish meal tickets that will be honored at the East Pittsburg Club or the Casino daily, except Sunday, and at any of the following hotels on Sundays and holidays: McDonald's Hotel, Braddock Avenue and Beech Street, Central Hotel, Linden Avenue, and Linden Avenue Hotel, Linden Avenue and Beech Street. These tickets will be issued by the Division Superintendent's Office; and special care should be exercised that these privileges may not be abused.

The tickets used and for which the Sections are charged will be returned after the close of each month and should be checked with the monthly bills. The record of overtime as shown by the "In" and "Out" cards also should be checked with the tickets returned by the Club, Casino and hotels.

If for any reason tickets cannot be used, they should be returned to the Division Superintendent's office.

Strangers:

Foremen should at all times question strangers who may be in their departments without a guide and ask to see their visitors' pass.

Waste of Power:

Foremen are hereby instructed that the men under their charge must turn off light, gas or compressed air used by them whenever they stop work; and until the men have become accustomed to this order, Foremen are expected to remain in their Departments long enough after quitting time to see that these instructions are properly carried out.

EMPLOYMENT, DISMISSAL, TRANSFER, ETC., CHECK MEN

Employment of Check Men:

METHOD:

FORM NAME	FORM NO.	ISSUED BY	NO. COPIES	SENT TO	REMARKS
Advice of W'kmen Req'd	1418	Section	2	Original to Employment Department. Keep carbon	Requesting additional help
" " " "	1418	Emp.Dept.	1	Section	With applicant
Employment Record Rate Card Advice of W'kmen Req'd	6158 5400 1418	Section " Emp.Dept.	1 1 1	Time Dept.	If applicant is employed
Employment Pass	2655	Emp.Dept.	1	Handed to watchman by applicant	Given to workman if latter is not to go to work at once and to be presented later for admission to Emp. Dept.
Notification of Employm't	P-1386	Emp.Dept.	1	Foreman	By the Workman.
Record of previous Emp.	P-1803	Emp.Dept.	1	Former Sect.	
Brass Check					Given to workman when starting to work
Badge					Given to janitors and truckers
Night Turn Pass	P-1154				Given to all night turn men

FORM 1418—When it becomes necessary to add to the working force either on account of new work or to replace men who have quit or been discharged, the Foreman should issue Form 1418, "Advice of Workmen Required," crossing out the words "Day" or "Night" as the case may be. In case the Foreman wishes to suggest names of those who could be used, such names should be given in the space provided for the purpose. It is to be understood, however, that names so given are suggestions only and are subject to approval of the Employment Department. The request should specify distinctly the classification of help wanted, using name of occupation given on Form 6151, give approximate rate and add such other information as may be necessary to clearly designate the nature of the work

on which the help is wanted. A list of occupations should be on file in each General Foreman's office for use in specifying rates. This form should be signed by the Foreman and General Foreman and forwarded to the Employment Department.

In the case of an employee returning to work after a quit slip, Form 870, has been put through, Forms 1418, 6158 and 5400 should be issued as for a new employee.

The Employment Department will then hire such help and will indicate the rate upon a Form P-1386, which accompanies the new employee into the works.

FORM 6158—If the person sent by the Employment Department is accepted by the Department making the request, the clerk in the General Foreman's office should, when the one employed reports for work, issue the "Employment Record" card, Form No. 6158, which is used by the Employment Department for a permanent record. It is essential in making out this form that the questions be plainly asked and the answers properly recorded. The name should be written out in full and should agree in every particular with the applicant's signature at the top of the form. Do not fail to enter place, year, month and day of birth and place of residence as complete identification may depend on any of these points.

The question "Have you worked for the Westinghouse Electric and Manufacturing Company before" does not refer to any particular Section but to the Works as a whole. Be sure that it is asked as given above, thoroughly understood and correctly answered. A willful misrepresentation on this point is sufficient cause for discharge.

This form will also be used for the re-employment of old employees, for whom a quit slip has been put through.

FORM 5400—In connection with the "Employment Record" card, a "Rate Card" Form No. 5400 Rev. is to be issued for all new or re-employed persons. Care should be taken to see that the name on the Rate Card agrees with the workman's signature. The rate as indicated upon the Form 1418 is to be entered thereon and together with the "Employment Record" and the duplicate Form 1418 is to be forwarded immediately to the Time Department (via Cost Office where time is figured in the Section) who will record the rate and forward at once these three Forms to the Rate Department, from which place the "Employment Record" will be forwarded to the Employment Department. Rate Card Form 5400 Rev. will then be filed in the Rate Department where the Semi-monthly Average Earned Rates per hour will be recorded for future reference.

FORM 2655—This form is to be issued by the Employment Department (and not by the Foreman) to new employees who are not to be furnished at once with a check and put to work; and is good for admittance to Employment Department **only.**

FORM P-1803—When a man is rehired for work in another department within one month after leaving the service, the Employment Department will send a copy of Form P-1803 to the department in which he previously worked. The Section will show on the form the information requested and return promptly to the Employment Department.

CHECK—In case the workman is to be put to work at once, a brass check should be issued to him and record made of his check number.

BADGE—If the workman is to work as a janitor or trucker he should be given also a nickle plated badge bearing the Section letter and Department number and a serial number. Record must be kept of the check number of the man and his serial number. Each Section and Department will be alloted a block of serial numbers to be used by their janitors and truckers. A charge of 25 cents will be made for any badge that is lost.

FORM P-1154—In addition, if he is to work on the night turn, a night turn pass, Form P-1154 should be given to him. This form is issued by the Foreman of the Section and should state the employee's name, Section and check number. They should be recalled when night turn employees are transferred to day turn. General Foremen should keep a record of the issuance of these passes for use by the Timekeepers.

When issuing check numbers to new employees, no number should be issued the second time until after the pay day for the period in which it has been used. This is to avoid the confusion that would arise on pay day if two men having the same number should call for an envelope.

Dismissal of Check Men:

METHOD:

FORM NAME	FORM NO.	ISSUED BY	NO. COPIES	SENT OR GIVEN TO	REMARKS
Quit Notice	1645	Workman	1	Foreman	Thence to Time Dept.
Advice of Employees Quit or Discharged	870	Section	3	Time Dept. Rate " Emp. "	**Accompanied by Time Slips**

Dismissal of Check Men:

METHOD:

FORM NAME	FORM NO.	ISSUED	NO. COPIES	SENT OR GIVEN TO	REMARKS
Left Work Pass	P-1787	Section	1	Workman	
Personal Property Pass	P-1789	*Section †Tool Room	1	Workman	*If man has no tool account †If man has tool account
Tool Release	1083	**Tool Room**	1	**Workman**	Thence **to Paymaster** If there is a tool acct.

FORM 1645—When an employee determines in advance that he will leave the Company's employ, he should fill out Form No. 1645, which after being countersigned by the Foreman and General Foreman, should be forwarded to the Time Department. One week's notice should be given in order to insure payment of wages due in full.

In case it is known in advance that employees are to be laid off, a list of names must be sent to the Employment Department in order that an effort may be made to find other places for them. Preference must be given in such cases to members of the Relief and Fire Departments.

Employees quitting due to sickness or leaving the city can draw their pay without the week's notice, with the approval of the General Foreman and Superintendent.

FORM 870—When an employee is leaving, either through quitting, lay off or discharge, triplicate copies of Form No. 870 should be filled out in full, one copy for the Time Department and one carbon copy each for the Rate and Employment Departments. It is particularly desirable that the reason for dismissal be entered in the space provided therefore. The quit slip should state the date and time the man quit work.

The necessary time slips should be prepared at once, or if the employee has had piece, contract or premium work, all papers pertaining to same should be attached to the quit slip. The latter signed by the Foreman, must then be presented at the General Foreman's Office by the messenger accompanying the leaving employee.

The copy of the quit slip, for the Time Department, after being signed by the General Foreman, must at once be forwarded with the time slips attached to the Chief Timekeeper, who after attaching a memorandum of the amount due the employee, will send it to the Relief Department office, if a member of the Relief Department, or to the Paymaster's office, if not a member.

FORM P-1787—The Foreman should provide the leaving employee with a Left Work Pass, Form P-1787. This must be shown to the Timekeeper before leaving and is to be taken up by the Watchman and forwarded to the Accounting Department.

Time Depts. Copy of Form 870 should show Workman's Personal Signature on back where possible.

The General Foreman, before signing the quit slip should communicate immediately by telephone with the Tool Supply Department, and if he finds that the leaving employee has no tool account he will write across the face of the quit slip, "No tool account." If the workman has personal tools, he should be provided with a Personal Property Pass, P-1789, signed by the General Foreman or head of the Department. Watchmen should see that the property carried out corresponds with that named in the pass, collecting the latter and forwarding to the Manager of Works office. The employee should then leave the Works and proceed to the Paymaster's office.

Should there be a tool account, the employee should be directed to the Tool Supply Department (W-4) where his tool account should be adjusted and his personal tools inspected. If everything is satisfactory to the Foreman of the Tool Supply Department (W-4), he will make out the Tool Release Slip, Form No. 1083, after which the workman will leave the Works for the Paymaster's office.

Cabinet makers, carpenters, pattern makers and wiremen having no tool accounts need not report to the Tool Supply Department, to have their personal tools examined. Those having tool accounts will close up the same personally at the Tool Supply Department before the Foreman signs the quit slip. The Foreman of the Tool Supply Department should make out a Tool Release Slip, Form No. 1083, after which the employee will return to his Department, have his personal tools examined by the Foreman and proceed to the General Foreman, who should issue a Pass-out, Form P-1789, for the employee's tools, and Quit Slip, Form No. 870, should be sent through in triplicate, as already outlined.

After the employee has been paid the Paymaster will send Quit Slip, Form No. 870, to the Tool Supply Department to close the account. After that has been done, the Quit Slip will be returned to the Paymaster.

The practice of having Watchmen accompany employees who are leaving has been discontinued. This is a general ruling and does not refer to special cases; for example, quarrelsome or intoxicated persons. In such cases a Watchman may be called.

In cases where an employee cannot find his way about the Works, it will be necessary to send some one to direct him. Such attendants should be errand boys or other cheap labor, and not Watchmen.

With the system herein outlined there will doubtless be a tendency on the part of some employees who are leaving to wander about the Works, since they will be unaccompanied by watchmen. Care must be exercised by the various Foremen to prevent such occurrences.

Absent Employees—When an employee has been absent for two weeks the following practice should be followed:

(a.) **If the man is not a member of the Relief Department** issue Form 870 in triplicate and send through as provided above, except in special cases where it is positively known that the man is off for good cause and will return. The quit slip should not be dated to take effect earlier than the day on which it is filled in and sent through. In case the employee stopped work before that date, the quit slip should state the last day on which he worked, as already provided, so that the Time Department will not be obliged to look up time slips for the intervening period.

If a man has been granted a leave of absence, and wishes to draw his pay, a quit slip should be issued in case the leave of absence is more than two weeks' duration. The man must then be rehired in the regular way upon his return to work. If the leave of absence is less than two weeks, no quit slip should be issued but the General Foreman should write a note to the Time Department to arrange for the man's pay.

When men have been temporarily laid off with the understanding that they are to return to work, they should not be taken from the roll before they return to work, unless it is possible to notify them so that they can seek other employment.

(b.) **If the man is a member of the Relief Department** and you have not already been advised that the absence is due to disability, call the Relief Department by telephone and find out whether the man has reported to them as being off sick or disabled. If the absence is known to be due to disability no quit notice should be put in, the man being retained on the roll until his return, or until you are notified by the Relief Department that he is able to return. One week after the receipt of such notification from the Relief Department if the man has not returned to work he should be taken from the roll, by putting through triplicate copies of Form 870, as provided above.

Transfer of Check Men:

Method:

Form Name	Form No.	Issued by	No. Copies	Sent to	Remarks
Advice of Transfer of Works Employees	1990	Transferring Section	1	**With man** to Receiving Section via Tool Dept.	Left-hand side filled in by sending Section Right-hand side filled in by Receiving Section
Advice of Employment of Monthly Men	4486	Receiving Section	1	Accounting Dept. via Manager of Works Office	Used only when transferring from Check to Monthly
Employment Record	2736	Receiving Section	1	Manager of Works Office	Used only when transferring from Check to Monthly

FORM 1990—When an employee is to be transferred from one Department to another, whether in the same or a different Section, the above Form No. 1990 should be issued, the transferring Section filling out the information on the left-hand side, securing the signatures of the Foreman and General Foreman of the Section and handing to the employee who will take it to the Small Tool Department for the adjustment of the tool account. Upon the completion of this adjustment, the employee will take the form to the General Foreman's office in the Section to which he is being transferred, who will fill out the right-hand side and forward to the Time Department (via. Cost Office where time is figured in the Section). After note has been made by that Department, this form will then be sent immediately to the Rate and Employment Departments for further record. In case the transfer involves a change of rate, this **will not** be noted on the transfer card, but must be shown on a "Re-rate Card" Form No. P-1133 (see below).

When an employee is to be transferred from **check to the monthly roll,** issue a "Transfer Card," Form No. 1990, and send to the Time Department by way of the Tool Department. The receiving Section will fill out copies of the Monthly Rate Card, Form 4486 and Employment Record Card, Form 2736 and send through as prescribed below for the employment of monthly men.

When an employee is to be transferred from the Works to the Apprenticeship Course, or vice versa, a Transfer Card, Form No. 1990 is to be issued in the regular way. All transfer cards must show the Relief Department number of the man transferred, if he is a member. If not a member, the space on the transfer card for the number must be filled by the initials of the person making out the transfer card.

Changes in Rate of Check Men:

In case the rate of check men is to be changed a Re-rate Card, Form P-1133, should be issued, signed by the Foreman and General Foreman and countersigned by the Head of the Division. The card is then forwarded (via Cost Office when time is figured in the Section) to the Time Department for record of the new rate, after which it is sent to the Rate Department for record and file.

MONTHLY MEN

Employment of Monthly Men:

For the employment of monthly men, Form No. 4486 revised "Advice of Employment of Monthly Men" should be

used together with a copy of the "Employment Record," Form No. 2736.

Form 4486 should be issued by the Division Superintendent for all monthly men working in the Shop, and, after being O.K'd by the Manager of Works, will be forwarded to the Accounting Department. Form 2736 should be issued by the Section and sent to the Manager of Works office for filing, when the employee reports for work.

FORM 1148 OR 1149—Monthly employees' pass should be issued to all monthly employees, and is good for admission to the Works during the hours specified. This pass is issued by the Manager of Works and must be renewed annually.

Dismissal of Monthly Men:

For the dismissal, laying off or discharge of monthly men, Form No. 4486, "Advice of Employment of Monthly Men" should be issued by the Division Superintendent and forwarded to the Manager of Works office, and from there to the Accounting Department.

Monthly men must be given two week's notice before dismissal except in cases of serious misdemeanor.

Form No. 1645, "Advice of Withdrawal," should be issued and forwarded to the Manager of Works office when monthly employees determine in advance that they will leave the Company's employ.

Transfer of Monthly Men:

In case monthly men are to be transferred from one Department to another, both the Superintendent of the Department releasing the man and the Department receiving the man should issue a copy of Form No. 4486 revised, and forwarded to the Accounting Department through the Manager of Works office.

If the man is to be transferred from monthly to check, the Division Superintendent should, upon notification, issue Form 4486, sending to the Accounting Department through the Manager of Works office. The transferring Department should also issue Form 1990, to be sent with the employee to the receiving Department. (The latter should issue Form P-1133, re-rate card, and a check.)

Changes in Rate of Monthly Men:

Form 4486 should be issued by the Superintendent's office and forwarded to the Accounting Department through the Manager of Works office for all monthly men whose rates are changed.

Clock Time Stamps for Monthly Men:

At each regular entrance will be found a clock time stamp and cards, Form P-77 and P-78, that must be used by all monthly men when entering or leaving the Works, at other than regular hours. The cards must be filled in legibly, showing the name, pass number and department, and must be stamped with the time stamp and handed to the Watchman. When working overtime, sign the "IN" card when entering the Works, and the "OUT" card when leaving.

Absences:

Monthly men expecting to be absent should fill out Form 1960 and hand to their superior prior to leaving.

Weekly Report of Monthly Employees, Form 6436, should be filled in by all monthly shop employees and handed weekly to their superior officer.

Each department head should make a weekly report on Form 2034 to the Salary Record Division of monthly employees who have been absent.

MISCELLANEOUS PASSES

Temporary Pass, P-1788:

This pass is issued by the Manager of Works to visitors, contractors' employees required to be in the Works and in all cases where temporary admission to the Works is granted. It is issued for a limited time only and must be taken up by the Watchman at the expiration of the limit and forwarded to the Manager of Works office.

Material Pass, P-1789:

This form is to be used in case property of the Company or personal property is to be taken from the Works; the word "Company" or "Personal" to be crossed out, as the case may be. In the case of Company property such as blue prints, books, samples, instruments, etc., the pass must be signed by head of the Department. For material applying to shipping orders the pass must be signed by the Storekeeper or Shipper. For cash sales when such sales have been properly approved, this pass should be signed by the Storekeeper and the initials of the official authorizing the sale. For material purchased by the Company for the personal use of its employees, it is to be signed by the Storekeeper and the Purchasing Agent. In the case of personal property, such as tools, etc., the pass may be signed by the General Foreman or the head of the Department.

Watchmen should see that the property carried out corresponds with that named on the pass, collecting the latter and forwarding to the Manager of Works office.

Timekeeping Passes:

Detailed instructions under this heading are included in INSTRUCTIONS No. 7.

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INSTRUCTIONS NO. 2

PRODUCTION FORMS AND SYSTEM

SECTION NO. 1

Check List of Forms in Active Use in Works Divisions.

SECTION NO. 2

Description of Principal Shop Clerical Processes with List of Forms to be Used.

PRODUCTION FORMS AND SYSTEM.

Check List of Forms Used by the Works:

In Section No. 1 of these Instructions will be found a check list of all forms in active use by the Works, together with a brief description of each. This list is intended to guide Foremen, Production Clerks and others in the proper use of forms and to advise them what forms exist for the different clerical processes which they will meet.

In Section No. 2 of these Instructions, is given a more elaborate description covering the more important clerical processes in use in the Works. This section will necessarily be incomplete since it is unnecessary to describe a large number of the less important clerical steps which are peculiar to each division of the Works.

In case it becomes necessary to deviate from the routine prescribed in Section No. 1 of these Instructions in regard to the number of copies to be issued, to whom they are sent, or for sections other than prescribed to use the different forms listed, the matter should be taken up with the Manager of Works Office before so doing. Any division of the Works finding that their present practice differs from that given herewith should bring the matter promptly to the attention of the Manager of Works Office.

The numerous forms known as "abstracts" have not been included in the body of the check list on account of the number of forms involved, but have been gathered together at the rear of the list.

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SECTION I

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
5	Record of Dies	G–1–3–5	1	G–1–3–5	Record of dies by drawing and item number, with operations required	.....
6	Record of "Spare Armatures Shipped Without Running Test"	Assembling Section	1	Dynamo Test	Record of spare armatures shipped without running test.	.....
32	"Machine Identification Tag"	A–2	1	With apparatus	Attached to apparatus when on test. Upon delivery to warehouse should be destroyed and replaced by Shipping Tag, Form No. 1202.	For description of Form No. 1202 see Instructions No. 2, Page 10.
38	"Record of Coils Tied"	E–6 Sub-Storekeeper	1	Workman	Daily record of number of coils taken by operator from storeroom to be tied, and as memo. from which to charge the time. Transcribed permanently to Form No. 159.	For description of Form No. 159, see Instructions No. 2, Page 3.
41	"Advice of Delivery of Finished Material Between Works Depts."	Delivering Section	3	Original and carbon to receiving section, carbon on file	For delivery of **all finished material** between Works departments, usually accompanying the material. Under no circumstances should this form be used for deliveries to the warehouse.	For deliveries to warehouse see Form No. 5501, Instructions No. 2, Page 17.
42	Monthly Record of Deliveries	G–1–3–5–8 and P–7	1	G–1–3–5, 8 and P–7	For recording deliveries made as per monthly abstracts.	.....
58	"Left Work Pass"	Section	1	Workman	By all employees on check who for any reason leave the Works before the regular closing hours.	For description of this form, see Instructions No. 1, Pages 7, 8 and 13.
77	"Out" Card	Monthly Employee	1	Watchman	By all monthly employees when entering or leaving the Works at other than regular hours.	For description of this form, see Instructions No. 1, Page 12.

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
78	"In" Card	Monthly Employee	1	Watchman	By all monthly employees when entering or leaving the Works at other than regular hours.	For description of this form, see Instructions No. 1, Page 12.
80	Check on Work Performed	Operator E–7	1	Time Clerk	As each piece is finished this card is punched by the inspector to insure correctness of dimensions and number of completed pieces reported on time slips.	.....
85	"A.C.–D.C. Winding Tag"	A, B, C, D, T–3 and W–2	1	With apparatus	Identification and winding information tag, destroyed upon completion of apparatus and replaced by Shipping Tag, Form No. 1202.	For description of Form No. 1202 see Instructions No. 2, Page 10.
93	"Preliminary Application for Membership," Relief Dept.	Employee	1	Relief Dept.	Application for membership in Relief Dept.	For description of this form see Instructions No. 1, Page 3, and pamphlet entitled "Regulations of the W. E. & M. Co., Relief Dept."
96	New Relief Dept. Members	Relief Dept.	1	Section	Advice to Foremen of new Relief Dept. members in their department.	For detailed description and use of this form see Instructions No. 1, Page 3, and pamphlet entitled "Regulations of the W. E. & M. Co., Relief Dept."
112	"Notice of Disability"	Section	1	Relief Dept.	To advise the Relief Dept. of the disability of a member.	For detailed description of this form see Instructions No. 1, Page 3, and pamphlet entitled "Regulations of the W. E. & M. Co. Relief Dept." Use Form No. 810 to advise Manager of Works Office of the disability of an employee.
159	"Daily Checking Record of Completed Coil Operations"	E–1–2–6 and 8	1	Time Clerk	To check daily the number of completed pieces reported on time slips.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
281	Record of Labor	C–4, P–1–2–3–4–5	1	C–4, P–1–2–3–4–5	Record of labor performed and pieces completed.	.....
306	Record of Apparatus Built	A, General Foreman's Office	1	A, General Foreman's Office	Record of the stock orders upon which each particular type of apparatus is built.	.....
378	Pink Slip "Material Not in Stock"	Sub-Storekeeper	3	Original to department requesting material. Two carbons to Storeroom Office	Issued to Works when material is not in stock.	One carbon returned to Works advising receipt of material.
396	D. & S. "X" Supply Order. Page 1	D. & S. Correspondence Dept.	1	To sections interested	The original supply order with complete manufacturing information is sent to the storekeeper where sufficient copies are made and sent to the works.	When standard parts are called for complete manufacturing information appears on the face of the order and is sent direct by the Correspondent to the Storekeeper. In all other cases the order passes through the Eng. Dept. where manufacturing information is added, using Form No. 6704.
397	D. & S. "X" Supply Order. Page 2	D. & S. Correspondence Dept.	1	To sections interested	Serves as Page 2 of Form No. 396.	See description of Form No. 396.
411	"Time and Work Report"	L–3	1	Time Dept.	Time Slip used only by day laborers in Dept. "L–3".	.....
413	"Report of Commutators"	A, General Foreman's Office	4	Original and two carbons to "F–3," carbon on file	Weekly advice of commutators required.	.....
431	"Checkboard Reading"	E, General Foreman's Office	1	E	Monthly record of checkboard reports. Transcribed from daily checkboard readings.	See daily checkboard readings, Forms Nos. 3143, 3144, 3145, 3497 and 5645.
474	"Report of Coils Wound"	T–3 Chargeman Hand	1	Time Clerk	To check daily the number of pieces	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
494	"Production Estimate," for Motors and Generators	Correspondence Dept.	3	Original to Engineering Dept., carbon to shop and Correspondence Dept.	Estimate of time required by the Eng. Dept. and the Works to furnish information and to manufacture motors and generators.	.....
496	"Record of Finished Parts"	A, General Foreman's Office	1	A, General Foreman's Office	Record of progress of work.	.....
498	Production Stock Order Record	A, General Foreman's Office	1	A, General Foreman's Office	By Production clerks to record information necessary in following orders.	.....
499	Stock Order Record	P–3	1	P–3	Record by serial number of transformers shipped.	.....
514	FX Supply Order, Page 2	Correspondence Dept.	1	To sections interested	Serves as Page 2 of Form No. 524.	See description of Form No. 524.
524	FX Supply Order, Page 1	Correspondence Dept.	1	To sections interested	The original supply order with complete manufacturing information is sent by the Correspondent to the Storekeeper where sufficient copies are made and sent to the Works.	When standard parts are called for complete manufacturing information appears on the face of the order and is sent direct by the Correspondent to the Storekeeper. In all other cases the order passes through the Eng. Dept. where manufacturing information is added, using Form No. 6704.
540	"Piece Work Price Memo."	E Foreman	1	E, General Foreman's Office	Advice to General Foreman of new piece work price.	.....
561	"Record of Monthly Requirements and Stock of Standard Coils"	E, General Foreman's Office	1	E, General Foreman's Office	To control manufacture of all standard coils.	.....
569	"Inspection and Transformer Assembly Tag"	P, General Foreman's Office	1	P–2–3–4, Transformer Test	Accompanies the transformer through the shop and serves as an information and inspection tag.	Removed from transformer prior to shipment.
629	"Report of Materials Used from Foreman's Stock"	I–2	2	Accounting Dept. File	Advice to Accounting Dept. of material used from Foreman's stock.	See accounting practices Instructions No. ...

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CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
632	"Overrun and Day Work Jobs in Sec."	All sections	1	Manager in charge	Advice to Labor Cost Division of all day work jobs and those in excess of time limit.	.....
635	"Pass Out With Material"	Storekeeper	1	Watchman	Pass out with material applying to shipping orders and for cash sales.	For description of this form see Instructions No. 1, Page 14.
653	"Memorandum"	All sections	2	All sections	Memorandum in duplicate for miscellaneous notes.	.....
662	Company Business Envelope	All sections	1	All sections	Inter-departmental business mailing envelope, 3½" x 6½".	This envelope may be used a number of times by crossing off the old address.
664	Company Business Envelope	All sections	1	All sections	Inter-departmental business mailing envelope, 4" x 9½".	This envelope may be used a number of times by crossing off the old address.
666	"Scrap" Tag	Section	2	Both copies to Scrap Dept., original forwarded to Accounting Dept., carbon returned to section	Must accompany all scrap to the proper scrap receiving department.	For method of handling scrap see Instructions No. 6.
672	"Labor Sheet Index"	Time Clerk A–5	1	Foreman's Office, A–5	Used by Time Clerk as record of various stock orders calling for duplicate material to avoid overrunning orders.	.....
675	"Stock Report of Type O.D. Transformer Coils"	E, General Foreman's Office	3	E–1–2–3	To control manufacture of O.D. transformer coils.	.....
680	Personal Property Pass	*Section †Tool Dept.	1	Workman	Pass for personal property, such as tools, etc., when taken from the Works.	*If man has no Tool Account. †If man has a Tool Account.
705	"Record of Tools Supplied to Workmen"	W–4	2	Original to workman, carbon on file	Record of small tools, such as taps, dies, drills, files, etc., furnished the workmen by the Company.	For description of this form see Instructions No. 1, Pages 7, 8, 9 and 14. For method of handling small tools see Instructions No. 4.

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
734	General Order Reading	D. & S. Correspondence Dept.	1	To sections interested	For shipments chargeable to L. & R., defective design, material or manufacture and general expense.	.....
737	"Night Turn Pass"	Section	1	All night men	This pass is issued by the foreman to all check employees engaged for night turn.	See Instructions No. 1, Pages 5 and 7.
775	"Works Requisition for Expense Material"	Section	2	Original to Storeroom, carbon on file	To control the withdrawal of expense materials.	For accounting practices see Instructions No. ...
776	"Req. for Expense Material"	Section	1	Pasted to inside front cover of requisition book, Form No. 775	Issued by Ass't Manager of Works Office, together with Form No. 775, as authority for the withdrawal of expense materials.	For accounting practices see Instructions No. ...
783	"Advice of Special Material Required"	Section	2	Original to Storekeeper, carbon on file	Advice to Storekeeper of time special and replace material will be required.	.....
801	Die Record	G, main die room	1	G, main die room	Record of dies by shelf number, etc.	.....
805	RX Repair Order	Repair Dept.	1	Sections interested	Order reading and instructions covering the repair and return of apparatus previously shipped on RX orders and damaged prior to shipment or in transportation.	If more repairs than indicated on face of order are necessary, hold all work and advise Repair Dept. Instructions to proceed will be issued by change notice.
809	RX Repair Order	Repair Dept.	1	Sections interested	Order reading and instructions covering the repair and return of apparatus.	If more repairs than indicated on face of order are necessary, hold all work and advise Repair Dept. Instructions to proceed will be issued by change notice.

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
810	"Report of Accident to Employees"	Section	1	Manager of Works Office via Relief Dept.	When necessary for an employee to have medical attention during working hours fill in this form and forward to Relief Dept., from whence it is sent to the Manager of Works Office.	For "Sick or Injured Employees" see Instructions No. 1, Page 3.
821	"Advice of C Order Completion and Disposition of Material"	Section	3	Original to Storekeeper, carbon to Accounting Dept., carbon on file	Advice to Accounting Dept. of completion of C order and disposition of material.	For accounting practices see Instructions No. . ., Page . . .
838	"Requisition for Miscellaneous Work"	Section	3	Original to department performing work, carbon to Accounting Dept. and on file	This form shall be used for all miscellaneous production work which is not covered by regular routing and for miscellaneous expense work, as follows: Repairs and renewals estimated to cost over $10.00 but not more than $20.00, also Additions and Extensions up to $20.00.	For all expense work this must be approved by the General Foreman and Superintendent.
853	"Report of Materials Used"	Section	2	Original to Accounting Dept., carbon on file	Advice to Accounting Dept. of extra materials used on S.O. 68, 69, 70 and 71 when no scrap results and when scrap material replaced has no scrap value.	For accounting practices see Instructions No. . ., Page . . .
863	"Request for Disposition of Material"	Section	2	Original to Materials Disposition Dept., carbon on file	Request for disposition of any considerable amount of surplus material accumulated on stock orders, also for disposition of surplus on S.O. 68, 69 or 70, involving a loss of more than $50.00	In cases where the loss does not exceed $50.00, the material may be disposed of by the Chief Clerk.
870	"Advice of Employees Quit or Discharged"	Section	3	Copy each to Time Dept. Rate Dept. Emp. Dept.	To be made out for all employees leaving the employ of the Company, either through quitting, lay-off or discharge.	See employment and dismissal of check men, Instructions No. 1, Pages 6 to 10 inc.

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
874	"Drawing Record"	Blue Print Clerk	1	Blue Print Storeroom	Record of drawings on file.	. . . . .
921	Identification Tag With Coupon	E–1–6	1	Attached to coil	Before coils are delivered to the storeroom by the operator, the coupon must be approved by the inspector to insure good workmanship. The coupon is then detached and turned in with the time slip.	. . . . .
938	"Winding Tag"	E–1–2	1	Operator	Complete winding information for use of operator.	The information on this tag is transcribed from L. Spec. shellaced and kept on file in the foreman's office. Issued to operator on each recurring stock order.
954	"Defective Apparatus Tag"	Section	1	With apparatus	Attached to defective apparatus or part and returned to proper department, indicating defect and advising disposition.	. . . . .
1000	"Time and Work Report"	W–2, T–3, A–4	1	Time Clerk	By workman for reporting time.	Thence to Time Dept.
1001	Transfer Tag	Section	1	With material	In all cases where the transfer of material by the industrial railway does not involve a paper transaction.	. . . . .
1002	Transfer Tag	Section	1	Industrial car	Guide for the industrial railway train crews to the receiving and sending departments.	. . . . .
1006	"Company Job Order"	B, D	1	Workman	For premium jobs upon which two or more workmen are engaged.	Thence to Time Dept.
1043	"Requisition for Castings"	Section	4	Original and two carbons to Foundry, carbon on file	For ordering all iron, brass and steel castings specified from A, B, C or N Foundries	One carbon returned from Foundry with promise.

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
1062	Rectifier Record	K–8	1	K–8 Foreman's Office	By production clerk to record progress made on rectifier bulbs.	.....
1080	"Production Estimate," Transformer	Correspondence Dept.	3	Original to Engineering Dept., carbon to shop and Correspondence Dept.	Estimate of time required by the Eng. Dept. and the Works to furnish information and to manufacture transformers.	.....
1083	"Advice of Tool Account Adjustment"	Tool Supply Dept., Sec. W–4	2	*Original to workman, carbon on file	Employee on leaving service of the Company should be directed to the Tool Supply Dept. where, if everything is satisfactory, a tool release slip will be issued.	*Thence to paymaster if there is a tool account. See Instructions No. 1, dismissal of check men, Pages 7, 8, and 9.
1102	"Report of Apparatus Found Defective on Test"	Test Dept.	3	Copy each to Chief Inspector, section interested and on file	Advice to Chief Inspector of all defects chargeable to S.O. 68 and 69 discovered in apparatus while on test.	.....
1112	Monthly "Employees Pass"	Manager of Works Office	1	Monthly Employee	Issued to all monthly employees for admission to the Works during the hours specified.	For description see Instructions No. 1, Pages 11 and 12.
1113	"Shipments for Sections"	S, T and W–2	1	Manager in charge	Daily report of machines delivered to warehouse.	.....
1133	"Advice of Change in Hourly Rate"	Section	1	Time Dept.	Advice to Time Dept. of change in hourly rate of employees on check.	.....
1202	"Machine Inspection Tag"	Shipping Inspector in A, B, C and D,	1	Shipper	Attached to all machines upon delivery to Shipper.	Thence to vault as permanent record.
1284	"Advice of Pattern Delivery to Shipper"	I–2	2	Original to Shipper, carbon on file	Receipt for patterns delivered to warehouse for shipment.	This slip also carries with it shipping directions for patterns delivered.

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
1289	"Armature Coil Winding Information"	E, General Foreman's Office	3	E–1–2 and 6 Foreman	Winding information to the foreman transcribed from L. and Ins. Specs.	.....
1299	Meal Ticket	Manager of Works Office	1	*East Pittsburg Club †Linden Avenue Hotel	Issued to Gen. Foremen, Asst. Gen. Foremen, Foremen, Asst. Foremen and Chief Clerks on monthly roll when necessary to work overtime through meal hours.	See Instructions No. 1, Page 4. *Daily except Sundays and holidays. †Sundays and holidays.
1313	Label	K–8	1	With bulb	Attached to rectifiers as a means of identification.	.....
1320	Stock Order Record	Dynamo Test	1	Foreman's Office	By production clerk to record information necessary in following orders.	.....
1321	Time and Work Report	T–3, W–2	1	Time Clerk	By workman for reporting time.	Thence to Time Department.
1341	Labor Record	Time Clerk A, F–1	1	A and F–1 Foreman's Office	Record of labor performed and pieces completed.	.....
1418	"Advice of Workmen Required"	Section	2	Original to Employment Dept., carbon on file	Notification to Employment Dept. when additional or replace workmen are required.	See Instructions No. 1, Pages 5 and 6, employment of checkmen.
1420	"Advice of Delivery Date"	Section	2	Original to correspondent, carbon on file	Advice to Correspondence Dept. of delivery date.	.....
1422	Amount of Castings Required	O–4, General Foreman's Office	1	Workman	Moulding information tag attached to patterns when placed in work.	.....
1481	"Work Order"	E, General Foremen's Office	2	E–7 Foreman	Advice to Mica Dept. of quantity and dimensions of mica required on a specific order.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
1645	Quit Notice	Workman	1	Foreman	Advice to Foreman when an employee determines in advance that he will leave the Company's employ.	Thence to Time Dept. See dismissal of check and monthly men, Instructions No. 1, Pages 7, 8 and 12.
1686	Production Stock Order Record	T–7	1	T–7 Foreman	By production clerk for recording information necessary in following orders.	Salmon card used for regular orders Blue card used for forfeit, preference and short date orders.
1756	Time Slip	Section	1	Time Dept.	Time slip in general use for reporting day work.	.....
1764	Time Slip	Printing Dept.	1	Workman in Printing Dept.	For reporting day work.	Thence to Time Dept.
1960	Report of Absence	Section	1	Chief Clerk	Notification to superior when monthly men are unavoidably detained or expect to be absent.	Thence to Gen'l Foreman and Superintendent.
1968	"Machine Tool Record"	Superintendent's Office	2	Superintendent's Office	To record location and description of all new machine tools.	Card is sent to and filed in receiving department office until arrival of new tool, date of receipt noted and then sent to the mill-wright for signature to show that tool has been properly placed and tagged. Thence to Superintendent's Office.
1990	Advice of Transfer of Works Employees	Transferring section	1	With man to receiving section via Tool Dept.	Issued when an employee is to be transferred from one department to another.	See transfer of check and monthly men, Instructions No. 1, pages 10, 11 and 12.
2029	Record of Winding Insulation	E–5 Foreman	1	E–5, Foreman	Record by mould number of winding insulation on L. and Ins. Specs.	.....
2143	Daily Check Board Report	Accounting Clerk	1	Time Dept.	Daily record of check board readings, check Nos. 1 to 120, inclusive.	See Forms Nos. 2144, 2145, 3497 and 5645.
2144	Daily Check Board Report	Accounting Clerk	1	Time Dept.	Daily record of check board readings, check Nos. 241 to 360, inclusive.	See Forms Nos. 2143, 2145, 3497 and 5645.

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
2145	Daily Check Board Report	Works Accounting Dept. Clerk	1	Time Dept.	Daily record of check board readings, check Nos. 361 to 480, inclusive.	See Forms Nos. 2143, 2144, 3497 and 5645.
2361	"Punch Dept. Rate Card"	G	1	G	To record limits and operations.	.....
2391	"Pay Shortage Claim"	Workman	1	Time Dept.	Itemized statement to Time Dept. of number of hours worked, etc., and amount of shortage.	.....
2463	"Order for Special Insulating Materials"	Winding Dept. Assembling Section	1	E–5	Advice to Cutting Dept. of special insulating materials required.	.....
2505	"Machinery Removal Notice"	Millwright	1	Superintendent's Office	Advice to Superintendent's Office of change in location of machine tools.	.....
2655	Employment Pass	Section	1	Handed to watchman by applicant	Issued by the Foreman to new employees who are not to be furnished at once with a check.	See employment of checkmen, Instructions No. 1, Pages 5 and 6.
2736	Employment Record	Section	1	Manager of Works Office	Issued by the section when monthly employee reports for work.	See transfer of check men and employment of monthly men, Instructions No. 1, Pages 10 and 11.
3246	Engineering Dept. Memorandum	Engineering Dept.	2	Shop file	Used by Engineering Dept. as Memo. to the Works.	The majority of these memos are confirmed by regular information from Clerical Division.
3497	"Daily Check Board Report	Works Accounting Dept.	1	Time Dept.	Daily record of check board reading, checks Nos. 121 to 240, inclusive.	See Forms Nos. 2143, 2144, 2145, 3497 and 5645.
3573	"Works Requisition for Small Tools of Standard Stock"	Section	1	W–4	Requisition for small standard tools carried in stock.	See Instructions No. 4, Pages 2, 3.

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
3577	"Blue Print Receipt"	Workman	1	Section, blue print file room	Receipt for blue prints while in possession of workmen.	.....
3623	Small Tool Record	W–4	1	W–4	Record of small tools identified to drawing numbers.	.....
3524	"Works Requisition on Small Tool Dept.	Section	3	Original and carbon to W–4, carbon on file	Requisition for small tools: (a) abnormal withdrawal of standard small tools; (b) special small tools not in stock.	Carbon copy returned to section with promise. See ordering of new tools, Instructions No. 4, Page 2.
3798	Pattern Record	Pattern Record Clerk	1	Pattern record file	Record of all patterns located in foundries other than the Allegheny, Cleveland and Brass Foundries.	.....
3883	"Advice of Change in Order." Change Notice	Storeroom Office	1	Sections interested	Notification of change in stock order reading.	All changes in S.O. readings are issued on white paper and copies sent only to sections interested except those covering additions, reductions, holds and cancellations which are issued on pink paper and copies sent to **all** sections.
3918	"Daily Molding Report"	O–4	1	O–4	Daily record of brass castings made.	Used only in the Brass Foundry.
3923	Pattern Record	O–4, Pattern loft	1	O–4, Pattern loft	To record receipt and location of patterns in Brass Foundry, pattern storage loft.	.....
3926	"Report of Finished Punchings Delivered"	G–1–3–5	3	Original to Account-Dept., carbons to department receiving material, and on file	Receipt for finished punchings made from sheet steel and drawn on Foreman's sheet steel account.	.....
3936	Pattern Record	Pattern Record Clerk	1	Pattern record file	Record showing location of all patterns.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
3983	Identification Label	E–2	1	With coil	Attached to each transformer coil as a means of identification.	.....
3984	Identification Label	E–2	1	With coil	Attached to each transformer coil as a means of identification.	.....
3985	Identification Label	E–2	1	With coil	Attached to each transformer coil as a means of identification.	.....
3986	Identification Label	E–2	1	With coil	Attached to each transformer coil as a means of identification.	.....
4028	"Date Notice"	Pattern Record Clerk	5	To Pattern Shop via section in which casting is ordered	Advice of new patterns required.	See method of ordering patterns, Instructions No. 4, Page 6.
4186	Raw Material Requisition	Storeroom Office	5	Original to Purchasing Dept., one carbon each to production clerk, receiving department and two carbons for file	Storeroom Office requisition to Purchasing Dept. for all material, raw and finished, purchased outside.	.....
4427	Identification Tag With Coupon	E–1–2	1	Attached to coil	Before coils are delivered to the storeroom by the operator the coupon must be approved by the inspector to insure good workmanship. The coupon is then detached and turned in with the time slip.	.....
4440	Pattern Record	Pattern Clerk	1	Pattern record file	Record of patterns made in Cleveland, Allegheny or outside pattern shops.	.....
4447	Requisition for Blue Prints	Pattern Clerk	1	Tracing vault	To order blue prints required by pattern shop.	.....
4486	Advice of Employment of Monthly Men	Section or Division	1	Accounting Dept. via Manager of Works Office	Record of employment of monthly men.	See employment of monthly men, etc., Instructions No. 1, Pages 10, 11 and 12.
4834	"Report of Material Used from Foreman's Stock"	Foreman	1	Accounting Dept.	Advice to Accounting Dept. of material used from Foreman's stock.	For accounting practices see Instructions No. ...

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
4883	"Works Closed Pass"	Section	1	Workman	For admitting employees to the Works on days when the Works are closed, etc.	These passes are collected by the Watchman and sent to Time Dept. See miscellaneous passes, Instructions No. 1, Page 13.
5026	Small Tool Record	W–4	1	W–4	Record of small tools by tool number.	.....
5156	"Tool Account Index"	W–4	1	W–4	Index to tool account of check employees.	.....
5184	"New Tools Required"	Section	3	Original and carbon to Superintendent's Office, carbon on file	Advice to Superintendent's Office of new tools required.	See ordering of new tools, Instructions No. 4, Pages 1 and 4.
5198	Production Stock Order Record	O–4	1	O–4, General Foreman's Office	By production clerk for recording information necessary in following orders.	.....
5318	"Monthly List of Steel Castings for Railway Motors"	A, General Foreman's Office	4	Atha Steel Casting Co., Manager Railway Dept., Storekeeper and file	By foundry to control manufacture of castings.	.....
5351	Company Property Pass	Head of Department	1	Watchman	Permit to take from the Works Company property.	See miscellaneous passes, Instructions No. 1, Page 14.
5361	"Works Requisition on Storeroom"	Section	2	Original to Storeroom, carbon on file	To withdraw materials from main storeroom into work in progress.	See accounting practices, Instructions No. ...
5362	"Works Credit Memorandum"	Section	2	Original to storeroom, carbon on file	To return material from work in progress to main storeroom.	See accounting practices, Instructions No. ...
5365	"Job Order Advice to Timekeeper"	Foreman	1	Time Clerk	Advice to timekeeper that job order is required.	This form is used only as a memo and may be destroyed as soon as job order is issued.
5366	"Foreman's Record of Progress of Work and Delivery Promises"	Section	1	Foreman interested	To record information necessary in following orders.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
5400	"Rate Card"	Section	1	Time Dept.	Advice to Time Dept. of engagement and hourly pay rate of employees on check.	For description of this form see Instructions No. 1, Pages 5 and 6.
5421	Limit Record Card	A, B, C, D, F–4, P	1	A, B, C, D, F–4, P	Record of operations and premium time limits.	.....
5501	"Deliveries by Works to Warehouse and Storeroom"	Sections	4	One copy each Accounting Dept., Store Dept., Shipping Dept., file	For delivery of all finished material between the Works and warehouse.	.....
5645	"Daily Check Board Report"	Works Accounting Dept.	1	Time Dept.	Daily record of check board reading, check Nos. 481 to 600, inclusive.	See Forms Nos. 2143, 2144, 2145 and 3497 for checks No. 1 to 480.
5836	Record of Labor Performed	A, B, C, D	1	A, B, C, D	Record of labor performed and number of pieces completed.	.....
6090	"Winding Tag for Rotor"	T–3, W–2	1	With apparatus	Identification and winding information tag.	Destroyed upon completion of apparatus.
6151	"Classification of Help by Occupation"	Rate Dept.	1	Section	Advice to shop of minimum rate per hour for specific occupations.	For description of this form see Instructions No. 1, Pages 5 and 6.
6158	"Record of Employment"	Section	1	Time Dept.	Issued when the one employed reports for work.	For description of this form see Instructions No. 1, Pages 5, 6.
6194	Record of Labor Performed	A, C, P–7	1	A, C, P–7	Record of labor performed and pieces completed.	.....
6237	"Stock Order"	Storekeeper's Office	1	Sections interested	Advice of apparatus to be manufactured.	.....
6257	"Advice of Date Finished Material or Apparatus is Required." Date Notice	Section	3	Original and carbon to section receiving the material, carbon on file	Issued by the Feeder Section immediately upon receipt of information, advising delivery date for finished material.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
6261	Production Stock Order Record	G, T	1	G, T, Foreman's Office	By production clerk to record information necessary in following orders.	.....
6263	Stock Order and Tool Order Record	G, W–5	1	G, W–5, Foreman's Office	By production clerk to record information necessary in following orders.	.....
6274	Production Stock Order Record	S–T	1	S and T General Foreman's and Foreman's Offices	By production clerk to record information necessary in following orders.	.....
6412	Production Stock Order Record	E	1	E, General Fore-Foreman's Office	By production clerk to record information necessary in following orders.	.....
6429	"Stock Order"	Storekeeper's Office	1	Departments interested	Advice of apparatus to be manufactured, with complete manufacturing information on the face of the order.	.....
6436	"Weekly Report of Monthly Employees"	Monthly employees	1	Superintendent's Office	Report of attendance.	Special care should be taken to insure the accuracy of these reports, which serve as a basis for the weekly report of absentees made to the Salary Record Division.
6445	Factory Requisition	L, L–4, O–4, W–3, Superintendent's Office and Manager of Works Office	4	One copy each Purchasing Agent, Storekeeper, Receiving Dept. and file	Requisition to Purchasing Dept. for material to be bought outside in connection with factory expense orders.	.....
6496	Production Stock Order Record	T–3, W–2	1	T–3, W–2, General Foreman's Office	By production clerk to record information necessary in following orders.	.....
6501	"Press Fit Data"	Assembling section	2	Engineering Dept., file	Advice to Engineering Dept. of press fit data, complete for one machine.	.....
6626	"Nernst Lamp Daily Record"	W–8	1	W–8	Record of repairs and renewals made to Nernst lamps.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
6644	"Report of Material Used"	Section production clerk	2	Original to Accounting Dept., carbon on file	Report of material used on cancelled or reduced orders, L. & M. stock orders, and "X" orders for which bill of material and information sheets are not issued.	.....
6657	"Extra Work Order"	Section	1	Timekeeper	Issued by the Foreman as authority for performing work on S.O. 68, 69, 70 and 71.	.....
6661	"Promise on Material Not Carried in Stock"	Storekeeper	3	Section interested	Advice to the Works of date upon which material ordered through Purchasing Dept. is expected.	.....
6700	Requisition for Blue Prints	Section production clerk	1	Tracing vault	Advice to tracing vault of blue prints required.	.....
6704	"Shop Information" "Complete" Sheet	Engineering Dept., Clerical Div.	1	Sections interested	Manufacturing information.	.....
6705	"Shop Information" "Incomplete" Sheet	Engineering Dept., Clerical Div.	1	Sections interested	Manufacturing information.	.....
6756	"Change in Routing"	Section	2	Engineering Dept., file	Advice to Engineering Dept. of change in routing.	For reporting errors in routing, suggestions for changes in design, etc., use Form No. 7154.
6801	"Premium Time Limit"	Section	1	Rate Dept.	Advice to Rate Dept. of premium time limit.	.....
6802	"Date Injured Employee Returns to Work"	Section	1	Manager of Works Office	To be issued immediately upon return to work of injured employee.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
6806	"Requisition for Miscellaneous Expense Work"	Section	3	Original to section performing work, carbon to Superintendent's Office and on file	For miscellaneous expense work, the estimated cost of which does not exceed $10.00.	Use Form No. 838 for miscellaneous expense work, the estimated cost of which will be more than $10.00 but not exceeding $20.00.
6821	"Production Stock Order Record"	F–2, W–5	1	F–2, W–5	By production clerk to record information necessary in following orders.	.....
6932	"Shop Information" "Distribution" Sheet	Engineering Dept., Clerical Div.	1	Sections interested	Distribution sheet showing department to which manufacturing information has been issued.	.....
6991	"Promise to Shop"	Engineering Dept., Information Div.	2	Sections interested	By Engineering Dept. to promise manufacturing information.	This form is issued as soon after receipt of stock order as details of design are decided upon.
7056	"Insulation Estimate"	Estimating Clerk E, Gen'l Foreman's Office	1	Accounting Dept.	Report of insulating material required.	.....
7076	"Job Route Card"	W–4	1	W–4	To record information necessary in following orders.	.....
7077	"Small Tool Record"	W–4	1	W–4	Permanent record of small tools ordered and in stock.	This form is issued in two colors used as follows: tools made of carbon steel, white card; tools made of blue chip or high speed steel, pink card.
7088	"Production Stock Order Record"	B, D, F–1–3–4, K, O–1, P	1	B, D, F–1–3–4, K, O–1, P	By production clerks to record information necessary in following orders.	.....
7092	"Bremer Arc Lamp Repair" Tag	W–8	1	W–8	Record of repairs made to individual Bremer arc lamps.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
6644	"Report of Material Used"	Section production clerk	2	Original to Accounting Dept., carbon on file	Report of material used on cancelled or reduced orders, L. & M. stock orders, and "X" orders for which bill of material and information sheets are not issued.	.....
6657	"Extra Work Order"	Section	1	Timekeeper	Issued by the Foreman as authority for performing work on S.O. 68, 69, 70 and 71.	.....
6661	"Promise on Material Not Carried in Stock"	Storekeeper	3	Section interested	Advice to the Works of date upon which material ordered through Purchasing Dept. is expected.	.....
6700	Requisition for Blue Prints	Section production clerk	1	Tracing vault	Advice to tracing vault of blue prints required.	.....
6704	"Shop Information" "Complete" Sheet	Engineering Dept., Clerical Div.	1	Sections interested	Manufacturing information.	.....
6705	"Shop Information" "Incomplete" Sheet	Engineering Dept., Clerical Div.	1	Sections interested	Manufacturing information.	.....
6756	"Change in Routing"	Section	2	Engineering Dept., file	Advice to Engineering Dept. of change in routing.	For reporting errors in routing, suggestions for changes in design, etc., use Form No. 7154.
6801	"Premium Time Limit"	Section	1	Rate Dept.	Advice to Rate Dept. of premium time limit.	.....
6802	"Date Injured Employee Returns to Work"	Section	1	Manager of Works Office	To be issued immediately upon return to work of injured employee.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
6806	"Requisition for Miscellaneous Expense Work"	Section	3	Original to section performing work, carbon to Superintendent's Office and on file	For miscellaneous expense work, the estimated cost of which does not exceed $10.00.	Use Form No. 838 for miscellaneous expense work, the estimated cost of which will be more than $10.00 but not exceeding $20.00.
6821	"Production Stock Order Record"	F–2, W–5	1	F–2, W–5	By production clerk to record information necessary in following orders.	.....
6932	"Shop Information" "Distribution" Sheet	Engineering Dept., Clerical Div.	1	Sections interested	Distribution sheet showing department to which manufacturing information has been issued.	.....
6991	"Promise to Shop"	Engineering Dept., Information Div.	2	Sections interested	By Engineering Dept. to promise manufacturing information.	This form is issued as soon after receipt of stock order as details of design are decided upon.
7056	"Insulation Estimate"	Estimating Clerk E, Gen'l Foreman's Office	1	Accounting Dept.	Report of insulating material required.	.....
7076	"Job Route Card"	W–4	1	W–4	To record information necessary in following orders.	.....
7077	"Small Tool Record"	W–4	1	W–4	Permanent record of small tools ordered and in stock.	This form is issued in two colors used as follows: tools made of carbon steel, white card; tools made of blue chip or high speed steel, pink card.
7088	"Production Stock Order Record"	B, D, F–1–3–4, K, O–1, P	1	B, D, F–1–3–4, K, O–1, P	By production clerks to record information necessary in following orders.	.....
7092	"Bremer Arc Lamp Repair" Tag	W–8	1	W–8	Record of repairs made to individual Bremer arc lamps.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
7095	"Piece Work Rate"	Section	1	Rate Dept.	Advice of piece work rate.	.....
7112	"Time and Work Report"	Section	1	Time Dept.	By workman for reporting time.	.....
7118	"Job Order"	Section	1	Time Dept.	By workman for reporting time.	.....
7147	"Armature and Field Coil Winding Information"	General Foreman's Office, E	1	Foreman E–1–2–6	Winding information to the Foreman.	Used only to write up information for foreman when old L. Spec. are called for, Forms No. 1289 and No. 7405 to be used in writing up information on new L. Spec.
7154	Advice to Engineering Dept. of errors in routing, etc.	Section	2	Original to Eng. Dept., carbon on file	For reporting errors in routing, suggestions for change in design and errors on drawings.	For reporting change in routing use Form No. 6756.
7155	"Advice of Castings Delivered by Brass Foundry"	O–4, General Foreman's Office	4	One copy each to the receiving section and auditor and two on file	For delivery of all brass castings.	.....
7160	"Job Order"	F–1, G–5	1	Time Dept.	By workman for reporting time.	.....
7161	"Transformer Coil Winding Information"	E, General Foreman's Office	1	Foreman E–2	Winding information to the Foreman.	.....
7174	"Identification Tag"	Section	1	With apparatus	Attached to screw machine details and other miscellaneous parts of apparatus as a means of identification.	This form when used for purposes of identification replaces linen tag Form No. 312.
7184	"Location of Small Tools"	Main and sub tool rooms	1	Tool room employee	Memorandum taken from permanent record showing location of small tools.	This form is issued to protect the permanent record and as soon as tool has been located is destroyed.
7196	"Job Order"	G	1	Time Clerk	By workman for reporting time.	Thence to Time Department.

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
7199	"Foreman's Record of Progress of Work and Delivery Promise"	O–4, T	1	O–4, T	By production clerk to record information necessary in following orders.	This form corresponds to the regular foreman's record card, Form No. 5366, except in color.
7214	"Permanent Shop Information" "Complete" Sheet	Engineering Dept., Clerical Div.	1	To section interested	Manufacturing information issued by the Engineering Dept., on standard apparatus or parts.	.....
7280	"Permanent Shop Information" "Incomplete" Sheet	Engineering Dept., Clerical Div.	1	To section interested	Manufacturing information issued by the Engineering Dept. on standard apparatus or parts.	.....
7382	"Overtime Pass (Straight Through)"	Section	1	Watchman	Issued to all check employees who work overtime "straight through."	For description of this form see Instructions No. 1, Pages 2 and 13.
7383	"Overtime Pass (Regular)"	Section	1	Watchman	Issued to all check employees who work overtime, except those who work straight through.	For description of this form see Instructions No. 1, Pages 2 and 13.
7387	"Premium Time and Work Report"	Workman	1	Time Clerk	By workman for reporting time.	.....
7391	"Time and Work Report"	Workman	1	Time Clerk	By workman for reporting time.	.....
7397	"Notification of Defective Work"	Time Clerk	1	Workman	Issued by Time Clerk on notification from Foreman that time lost, due to defective workmanship, is to be deducted from pay.	.....
7405	"Field Coil Winding Information"	General Foreman's Office, E	1	Foreman E–1–2	Winding information to the Foreman.	.....
7406	"Company Job Order"	Workman	1	Time Clerk	By workman for reporting time.	.....

CHECK LIST OF ACTIVE WORKS' FORMS

Form No.	Form Name	Issued or Used by	No. of Copies	Sent to, Given to or on File in	How Used	Remarks
7427	"Production Stock Order Record"	P–7	1	P–7	By production clerk to record information necessary in following orders.	.....
7458	"Report of Type C Transformer Coils Required"	E–3	3	E–1–2 and 3	To control manufacture of transformer coils.	.....
7582	Check Card	T–3	1	T–3	By production clerk in following manufacture of secondary bars.	.....
7591	Record of Pieces Completed	W–7	1	Time Clerk	By time clerk to record and check number of pieces painted and delivered.	.....
7611	"Production Stock Order Record"	G, H, O–1, and P	1	G, H, O–1 and P	By production clerk to record information necessary in following orders.	For Sections "O" and "P" this form is issued separately. For Section "G" it is padded and used in conjunction with No. 7804 and is known as Form No. 7804.
7614	"Suggestion for Change in Method of Manufacture"	Employee	2	Manager of Works Office	By all employees in suggesting to their superior, changes or improvements in methods of manufacture.	.....
7701	"Weight of Finished Punchings"	A, B, C, D, P, S, W and Y	3	Original to Engineering Dept., carbon to Section G and on file	Advice to Engineering Dept. of actual weight of punchings used.	.....
7804	"Production Stock Order Record"	G–1–3 and 5	1	Time Clerk	By time clerk as a guide in writing up labor sheet.	See Form No. 7611, which for use in Section "G" is padded with No. 7804.
7807	Labor Record	G	1	G	Record of labor performed and number of pieces completed.	.....
7838	Meal Ticket	Manager of Works Office	1	*East Pittsburg Casino †Linden Avenue Hotel	Issued to Inspectors and Factory Clerks on monthly roll when necessary to work overtime through meal hours.	See Instructions No. 1, Page 4. *Daily except Sundays and holidays. †Sundays and holidays.

The following "abstract" forms are issued by the Storekeeper to the Works and Foundries, and are used to control the manufacture of machines, castings and miscellaneous parts.

In addition, blank form known as "Ruled Sheet No. 2," printed matter to be specified as required is used with such miscellaneous parts as are not provided for with regular forms.

43	451	720	5802
66	452	721	5804
71	453	722	6085
170	454	723	6172
171	533	852	6601
172	534	991	6602
180	535	996	6603
181	538	1005	6604
187	553	1007	6606
229	570	1008	6682
230	599	1009	6688
232	602	1010	6897
233	608	1011	6898
234	615	1012	7083
236	616	1013	7084
246	650	1014	7169
284	652	1031	7170
285	673	1032	7172
286	674	1033	7182
287	676	1034	7575
288	709	1035	7576
289	710	1036	7577
290	711	1037	7578
291	712	1038	7579
292	713	1039	7580
293	714	1040	7608
294	715	1041	7609
295	716	1042	
296	717	4191	
394	718	5079	
396	719	5390	

INSTRUCTIONS NO. 3

ORGANIZATION OF THE WORKS DEPARTMENT

REVISED TO MAY, 1913

Changes in the organization as herein shown are to be reported in writing to the Manager of Works Department.

ORGANIZATION OF THE WORKS DEPARTMENT—February, 1913

ALEXANDER TAYLOR, Manager of Works
CHAS. W. JOHNSON, General Superintendent
C. B. AUEL, Directer of Standards, Processes and Materials.
E. R. NORRIS, Director of Mfg. Operations.
WM. COOPER, Director of Buildings and Equipment.
G. D. PIPER, Director of Works Accounting.
A. B. REYNDERS, Director of Production

*Asst. to Supt.

Sec.	Division and Department	Superintendent	Assistant Superintendent	General Foreman	Assistant General Foreman	Foreman	Assistant Foreman	Chief Prod. Clerk† Chief Cost Clerk‡	Foreman of Inspectors	Rate Setter
A	**Railway**	R. L. Wilson	J. A. Wirth	C. H. Long	.....	.....	.....	G. W. Bethell† H. R. Goodwin‡	L. J. Davis	.....
A-1	Fld. Mchg.	"	"	"	.....	G. W. Wolfe	J. K. Marthens Thos. Fulton	"	"	G. T. Saunders
A-2	Assemb.	"	"	"	.....	E. C. Merwin	G. W. Klinger	"	"	"
A-3	Arm. Core	"	"	"	.....	H. Korb	.....	"	"	"
A-4	Winding	"	"	"	.....	F. W. Raab	.....	"	"	R. Reed
A-5	Bearing	"	"	"	.....	W. C. Orr	.....	"	"	G. T. Saunders
B	**Power**	J. A. Baird	C. C. Brinton*	F. T. Smale	.....	.....	.....	C. D. Byers† E. E. Beveridge‡	R. A. Simpson	G. E. Shackleton
B-1	Mchg.	"	"	"	M. M. Coulter	.....	.....	"	"	"
B-2	Assemb.	"	"	"	"	H. Brockschmidt	.....	"	"	"
B-3	Bldg.	"	"	"	"	J. A. Bunker	.....	"	"	H. L. Bunker
B-4	Wdg.	"	"	"	H. Matthews	C. D. Park	.....	"	"	J. V. McCauley
B-5	Finishing	"	"	"	M. M. Coulter	Wm. Strutt	.....	"	"	G. E. Shackleton
C	**Power**	"	" *	C.H. Champlain	"	.....	.....	"	"	.....
C-1	Mchg.	"	"	"	"	E. Sterline	.....	"	"	A. L. Taylor
C-2	Bldg. & Ass.	"	"	"	"	R. W. Patton	.....	"	"	"
C-3	Winding	"	"	"	H. Matthews	Geo. Kurth	.....	"	"	J. V. McCauley
C-4	Assembling	"	"	"	M. M. Coulter	R. W. Patton	.....	"	"	A. L. Taylor
C-5	Shaft	"	"	"	"	Wm. Schott	A. R. Graham	"	"	H. L. Bunker
D	**Power**	"	"	Wm. Langhorst	.....	.....	.....	C. D. Byers† E. E. Beveridge‡	"	.....
D-1	Mchg.	"	"	"	.....	B. Calvin	.....	"	"	G. E. Shackleton
D-2	Assem.	"	"	"	.....	J. A. Peck	.....	"	"	J. V. McCauley
D-3	Winding	"	"	"	H. Matthews	Chas. Qualman	.....	"	"	.....
E	**Coils & Ins.**	I. DeKaiser	Jno. Ritter	A. W. Milligan	Frank Sass	.....	A. B. Gibson A. Miller	J. H. Hartman† Sam Schutzman‡	C. D. Lamade	J. Geimeier
E-1	Winding	"	"	"	"	Geo. Shontz	J. W. Brown	"	"	"
E-2	"	"	"	"	"	Wm. B. Zeigler	M. L. Wagner	"	"	"
E-3	Transf. Coil Assemb.	"	"	"	"	A. F. Rolf	R. E. Galbraith Jno. Ash	"	"	.....
E-4	Mould	"	"	"	"	J. H. Gibson	.....	"	"	.....
E-5	Cutting	"	"	"	"	M. E. Marcellus	C. W. Weiser	"	"	.....
E-6	Ass. Wire Wound	"	"	"	"	Wm. Neely	C. H. Patton	"	"	N. Cutchall
E-6	Ass. Cop. Strap	"	"	"	"	"	W. R. Keeler	"	"	"

Sec.	Division and Department	Superintendent	Assistant Superintendent	General Foreman	Assistant General Foreman	Foreman	Assistant Foreman	Chief Prod. Clerk† Chief Cost Clerk‡	Foreman of Inspectors	Rate Setter
E-7	Mica	I. DeKaiser	Jno. Ritter	A. W. Milligan	Frank Sass	Earl Gregg	Jas. Steiner Walter Stagg	Sam Schutzman‡ J. H. Hartman†	C. D. Lamade	N. Cutchall
E-8	Fld. Coil Ass.	"	"	"	"	Thos. Hammond	Frank Rush	"	"	"
E-9	Dip and Dry	"	"	"	"	J. F. Hannum	Frank Hughes Jas. Lombard	"	"	.....
E-10	Micarta	"	"	"	"	Jno. Thier	.....	"	"	.....
E-11	Arm. Coil Form.	"	"	"	"	Jno. Wersing	.....	"	"	J. Geimeier
F-1	**Control**	R. L. Wilson	J. A. Wirth	C. H. Long	.....	C. Smith	W. Hughes J. J. Gallagher	H. R. Goodwin‡ W. J. Leighner†	L. J. Davis	S. J. McCreanor
F-2	Sc. Mch.	.....	.....	Frank Ritzel	.....	.....	Percy Hulme	Jos. V. Roney‡ Thos. Phillippi†	W. H. Miller	P. Cummins
F-3	Rwy. Details	R. L. Wilson	J. A. Wirth	C. H. Long	.....	W. Henderson	.....	H. R. Goodwin‡ G. W. Bethell†	L. . Davis	T. N. Kline
F-4	Pwr. Det.	J. A. Baird	.....	F. T. Smale	M. W. Coulter	S. Black F. Ryall	.....	C. D. Byers† E. E. Beveridge‡	R. A. Simpson	E. E. Murphy
G	**Punchings**	O. W. Cook	.....	J. P. McGivern	.....	.....	.....	E. R. Watkins‡ M. J. Menges†	Wm. Mayer	W. L. Hindman
G-1	Large Pchgs.	"	.....	"	.....	D. Miller	S. E. Thoms	"	"	E. Johnson
G-2	Anneal	"	.....	"	.....	.....	.....	"	"	.....
G-3	Small Pchgs.	"	.....	"	.....	W. Miller	R. Kindler	"	"	E. Johnson
G-4	Brass & Cop.	"	.....	"	.....	J. C. Fuchs	C. J. Stockman	"	"	G. B. McInt
G-5	Trans. Pchgs.	"	.....	"	.....	W. Miller	F. McIntosh	"	"	E. Johnson
G-7	Electrode	"	.....	"	.....	A. K. Lewis	.....	"	"	.....
G-8	Enamel	"	.....	"	.....	"	.....	"	"	B. G. McIntyre
H	**Forge**	"	.....	A. Christie	.....	A. Wilson T. Jones	.....	G. W. Snyder† E. R. Watkins‡	"	D. Anderson
I										
I-10	Cabinet	.....	J. Hepp	.....	.....	J. Kleinknecht	A. A. Jones	R. L. Cale‡	J. France	.....
I-11	Paint	.....	"	.....	.....	H. D. Lawson	.....	"	"	.....
I-12	Box Shop	S. E. Marks (Shipper)	.....	.....	.....	W. Lawson	.....	.....	.....	.....
I-15	Inside Carp.	M.W. Chambers	.....	J. Uptegraff	.....	E. E. Evans	.....	Mac Simpson† R. C. Burgess‡	.....	.....
I-16	Pattern	.....	J. Hepp	.....	.....	Leon Herzog	H. Collins	R. L. Cale‡	.....	J. Collins
I-20	Winding	.....	I. H. Mills	H. J. Jones	.....	O. Carlson A. C. Chase J. J. Sponske	Mrs. E.M.Zeigler	W. J. Otterson‡ F. J. Shiring†	C. J. Fay	J. Pulis W. L. Davis
I-30	Assembling	.....	"	"	.....	C. Jahnig	.....	"	"	J. O. Carlson
I-40	Machine	.....	"	"	.....	G. F. Maxton	J. F. Ganster	"	"	E. Cunningham
I-50	Painting	.....	"	.....	.....	A. W. Whitehill	.....	"	"	.....

*Asst. to Supt.

Sec.	Division and Department	Superintendent	Assistant Superintendent	General Foreman	Assistant General Foreman	Foreman	Assistant Foreman	Chief Prod. Clerk† Chief Cost Clerk‡	Foreman of Inspectors	Rate Setter
J & Q	Power Plant	...	...	S. Babcock	...	...	...	H. H. King‡	...	...
"	Repairs	...	...	"	...	H. Copeman	...	...	...	...
"	Boilers	...	...	"	...	J. I. Bennett	...	...	...	...
"	Elec. Equip.	...	...	"	...	J. V. Bell	...	...	...	...
K	**Detail**	W. H. Siemon	W. Dittmer C. S. Doran*	...	...	...	...	G. B. Shannon† S. H. Holliday†	...	J. Burt
K-20	Screw Mach.	"	"	...	...	Chas. C. Fisher	M. Myers	"	H. W. Dean	S. J. McCreanor
K-30	Cir. Breaker	"	"	...	...	H. Cornfield	A. Amundsen C. Bert	"	"	P. Edmonds
K-40	Rheostat	"	"	...	...	H. Lange	...	"	"	C.B. Schoeman
K-41	Line Mat'l	"	"	...	...	H. Wunderlich	...	"	"	"
K-50	Sw. Board	"	"	...	...	Otto Langguth	H. Echardt W. Hamilton	"	"	J. Burt
K-60	Auto-Starter	"	"	...	...	David Roberts	L. Herbold	"	"	C. B. Schoeman
K-70	Switch	"	"	...	...	F. Leibensperger	J. Morgan	"	"	J. Kennedy
K-80	Rectifier	"	"	...	...	W. Teasdale	...	"	M. Bobier	...
K-81	Elec. Heat'g	"	"	...	...	E. E. Stone	G. Klein	"	H. W. Dean	J. Kennedy
K-84	Pol. Plat.	"	"	...	...	Jno. Corbit	...	"	W. England	W. England
L										
L-2	Out. Carp't'r	M.W. Chambers	...	J. Uptegraff	...	J. A. McGurrin	...	Mac Simpson‡ R. C. Burgess†	...	...
L-3	Labor	"	...	"	...	Jas. Pyles	...	"	...	...
L-5	Pipe Fitting	"	...	"	...	J. J. Shields	F. J. Burgoon T. J. Little Ed Powers W. W. White	"	...	...
L-6	Wiring	"	...	E. Shaffer	...	H. D. Fenn	...	"	...	...
L-7	Millwright & Belt	...	...	H. F. Elshoff	...	...	...	...	...	...
"	Millwright	...	...	"	...	H. W. Starz	...	T. W. Marshall‡	...	...
"	Belt	...	...	"	...	B. Fox	Aug. Nerger	"	...	...
L-8	Transport.	M.W. Chambers	...	J. Uptegraff	...	G. W. Jones, Yardmaster	...	Mac Simpson‡ R. C. Burgess†	...	...
L-9	Lamp Repair	"	...	E. Shaffer	...	G. E. Spamer	...	"	...	...
L-10	Watchman & Jan.	"	...	A. A. Conner.	W. R. Weaver	...	...	"	...	...
L-11	Indus. R. R.	"	...	Ch. Watchman	Asst.Ch.W.	G. W. Collins	...	"	...	...
M-1	Polish & Plat.	W. H. Siemon	W. F. Dittmer C. S. Doran*	...	...	Jno. Corbit	H. Axelson	G. P. Shannon† S. H. Holliday‡	W. England	W. England
O	**Copper**	I. DeKaiser	Jno. Ritter	G. Chovan	...	...	...	J. C. Featherston‡ H. E. Jones	C. D. Lamade	...
O-1		"	"	"	...	A. Malcher	...	"	"	J. Farrel
O-2		"	"	"	...	W. A. Stamford	...	"	"	"
O-3		"	"	"	...	R. G. Byerly	...	...	...	...
...		...	...	...	...	...	...	...	...	...

*Asst. to Supt.

Sec.	Division and Department	Superintendent	Assistant Superintendent	General Foreman	Assistant General Foreman	Foreman	Assistant Foreman	Chief Prod. Clerk† Chief Cost Clerk‡	Foreman of Inspectors	Rate Setter
O-4	Brass Fdy.	...	W.J. Reardon	...	...	Jos. Scheffel Henry Saupe	...	C. E. Decker† W. A. Boice‡	G. Pointer	...
O-5	Metal Pat.	...	F. J. Hepp	...	...	J. Seabert	...	R. L. Cale‡	...	...
O-8	Die Casting	...	W.J. Reardon	...	...	J. F. Taylor	...	W. A. Boice‡	Wm. Mayer	...
P	**Transformer**	I. DeKaiser	J. Beech	M.L. Fawcett	...	...	...	F. R. Kettering† H. H. Spiker‡	C. D. Lamade	...
P-1	Machining	"	"	"	...	C. P. Yates	R. M. Hatch	"	"	H. L. Forsha
P-2	Bldg. & Mtg.	"	"	"	...	H. Y. Marcellus	Jno. Iley	"	"	"
P-3	Mtg. & Bldg.	"	"	"	...	W. T. Ramsey	G. Mooney	"	"	"
P-4	Fitting	"	"	"	...	J. Burke	Wm. Zeck	"	"	"
P-6	Tinning	"	"	"	...	Geo. White	A. Kunkle F. Huhn	"	"	"
P-7	Mach. Repr.	...	...	W. S. Stone	...	D. S. Barry H. Sleightholm	...	T. W. Marshall‡	...	...
P-10	Cir. Breaker	I. DeKaiser	J. Beech	M. L. Fawcett	...	F. Zimmerman	...	F. R. Kettering† H. H. Spiker‡	C D. Lamade	H. L. Forsha
R	**Locomotive**	R. L. Wilson	J. A. Wirth	F.D. Kennedy	...	...	...	G. P. Casper† G. Hiatt‡	L. J. Davis	...
R-1	Machining	"	"	"	...	Robt. J. White	...	"	"	G. T. Saunders
R-2	Motor Ass.	"	"	"	...	E. Rutherford	...	"	"	"
R-3	...	...	...	...	...	...	...	...	...	...
R-4	Loco. Assem.	"	"	"	...	A. W. Allison	...	"	"	"
R-5	Struct. Iron	"	"	"	...	J. E. McCartney	...	"	"	...
S	**Lge. Indus. Mtr. D.C.**	F. S. Martin	J. F. Gasser* M.P. Sorber	...	Jos. Preston	...	...	L. C. Tomer† Jno. Lewis‡	W. J. Mitchell	C. E. Williams
S-2	Motor Ass.	"	"	...	"	L. Rapp	...	"	"	"
S-3	Lge.Mtr.Ass.	"	"	...	"	D. Barclay	...	"	"	"
S-4	Machinery	"	"	...	"	A. Hoedle	...	"	"	A. J. Horaz
S-5	Bracket	"	"	...	"	C. H. Dayne	...	"	"	"
S-6	Bed Plt. Rail	"	"	...	"	T. Harper	...	"	"	W. E. Johnston
S-7	Pole	"	"	...	"	"	...	"	"	"
T	**Lge. Indus. Motor**	"	"	...	"	...	...	"	"	...
T-1	Bearing	"	"	...	"	W. C. Baker	...	...	"	C. E. Williams
T-2	A.C. Assemb.	"	"	...	"	M. Hughes	...	"	"	"
T-3	Winding	"	"	...	M. Sandfield	H. Wagner Jno. Boden T. McCullough	A. Mura W. E. Thompson	"	"	R. Reed
T-4	Br. Holder	"	"	...	Jos. Preston	J. Myler	...	"	"	T. Shane
T-5	Commutator	"	"	...	"	M. Smith	...	"	"	"
T-6	Building	"	"	...	"	A. Coates	...	"	"	"
T-7	Spider	"	"	...	"	C. S. Cree	...	"	"	W. E. Johnston
T-8	Shaft	"	"	...	"	J. Orth	...	"	"	...
U-1	Cutting-Off	"	"	...	...	C. A. Smith	...	...	...	H. L. Bunker

*Asst. to Supt.

Sec.	Division and Department	Superintendent	Assistant Superintendent	General Foreman	Assistant General Foreman	Foreman	Assistant Foreman	Chief Prod. Clerk† Chief Cost Clerk‡	Foreman of Inspectors	Rate Setter
W-1	Apprentice	.....	C. E. Downton	Wm. Suters	.....	G. B. Duncan	.....	Jno. Walsh‡	.....	.....
.....	.....	.....	.....	.....	.....	John O'Niel	.....	.....	.....	.....
W-2	Med. Indus. Motor	F. S. Martin	M. P. Sorber	H. J. Bowen	.....	.....	.....	H. J. Coons† Jno. Lewis‡	W.J. Mitchell	.....
W-20	Med. Indus. Detail	"	J. F. Gasser*	"	.....	Wm. Antis	.....	"	"	H. G. Robbins
W-21	Machining	"	"	"	.....	O. M. Harris	.....	"	"	.....
W-22	Winding	"	"	"	.....	C. N. Large	H. O. Horton	"	"	R. Reed
W-23	Assemb.	"	"	"	.....	F. M. Williams	.....	"	"	H. G. Robbins
W-28	.....	"	"	"	.....	Geo. P. Loesch	.....	"	"	"
W-3	Experimental	.....	E. Sass	.....	.....	T. Abtmeyer	.....	J. R. Backofen† W. M. Rath‡	.....	.....
W-4	Small Tool	.....	E. Sass	F. S. Walters	.....	F. C. Hering J. L. Helquist	L. M. Osborne F. L. Coffee	W. N. Rath‡	.....	.....
W-5	Large Tools	O. W. Cook	.....	H. C. Lange	.....	.....	.....	J. Beswick† E. R. Watkins‡	Wm. Mayer	W. L. Hindman
W-50	Dies	"	.....	"	.....	J. Sass	C. L. Klein	"	"	G. R. Lang
W-51	Dies & Form.	"	.....	"	.....	H. Hentschel	G. Anderegg	"	"	.....
W-52	Machining	"	.....	"	.....	F. F. Deak	A. Boehm T. C. Lyons	.....	"	J.VanHamersveld
W-7	Paint	J. A. Baird	C. C. Brinton*	.....	.....	E. W. Davis	.....	J. A. Clugston‡	.....	.....
X-1	Scrap Rec.	A. S. Duncan, Storekeeper	.....	.....	.....	Alex. Watson	.....	C. W. Marattа‡	.....	.....
X-2	Smelting	.....	W.J. Reardon	.....	.....	C. Zimmerman	.....	W. A. Boice‡	.....	.....
Y-2	Galvanizing	W. H. Siemon	Wm. Dittmer C. S. Doran*	.....	.....	Jno. Corbit	.....	.....	.....	.....
Z	**Oil & Insul.**	J. R. Sanborn	.....	.....	.....	.....	.....	.....	C. D. Lamade	.....
Z-10	.....	"	.....	.....	.....	A. J. Bastian	.....	.....	"	.....
Z-20	.....	"	.....	.....	.....	Harry Coyne	.....	.....	.....	.....
Shady-side Works	**Ltg. & Ignit.**	F. W. Young	.....	Geo. Ritter	.....	H. Wunderlich	.....	W. S. Harper† W. M. Irwin‡	C. J. Fay	C. T. Packer
	Gen. Sets	.....	.....	W. Van Zandt	.....	.....	.....	"	"	J. A. Smith
	Testing	E. M. Olin	E. I. Chute	.....	.....	E. McCandless	N. E. Wells	C. L. Thorne‡	S. Henderson, Engineer	.....
A-6	Dynamo	.....	"	.....	.....	.....	R. A. Harp	.....	.....	.....
B-6	"	.....	"	.....	.....	"	C. W. E Wallin	.....	.....	.....
C-6	"	.....	"	.....	.....	"	H. J. Keibler	.....	.....	.....
D-6	"	.....	"	.....	.....	"	C. W. E. Wallin	.....	.....	.....

Sec.	Division and Department	Superintendent	Assistant Superintendent	General Foreman	Assistant General Foreman	Foreman	Assistant Foreman	Chief Prod. Clerk† Chief Cost Clerk‡	Inspector	Rate Setter
I-35	Sm. Motor	E. M. Olin	E. I. Chute	.....	.....	C. J. Fay	W. H. Brady	C. L. Thorne‡	.....	.....
K-21	Detail	.....	"	.....	.....	R. O. Glenn	G. Jensen	"	.....	.....
...	.....	.....	"	.....	.....	.....	.....	.....	.....	.....
P-9	Transformer	.....	"	.....	.....	W. J. Harrer	F. S. Peterkin J. N. Elliot	C. L. Thorne‡	.....	.....
R-6	.....	.....	"	.....	.....	E. McCandless	N. E. Wells	.....	.....	.....
S-1	Industrial	.....	"	.....	.....	F. L. Baker	D. L. Jones	.....	.....	.....
W-24	Med. Indus.	.....	"	.....	.....	C J. Fay	C. F. Munshower	.....	.....	.....
....	Fly Wheel Test	.....	"	.....	.....	E. McCandless	N. E. Wells	.....	.....	.....
....	Machine Co. Test	.....	"	.....	.....	"	"	.....	.....	.....
Night	**All**	.....	.....	.....	.....	.....	.....	.....	.....	.....
A-1	Machining	.....	.....	.....	.....	G. H. Blackmore	.....	.....	W. Leach	.....
B-1	Machining	.....	.....	J. D. Singleton	.....	Chas. Rowe	.....	.....	C. A. Richardson	.....
B-2	Assembling	.....	.....	"	.....	"	.....	.....	"	.....
B-4	Winding	.....	.....	"	.....	R. W. Leuckart	.....	.....	"	.....
B-5	Finishing	.....	.....	"	.....	Chas. Rowe	.....	.....	"	.....
C-3	Winding	.....	.....	"	.....	R. W. Leuckart	.....	.....	"	.....
D-1	Machining	.....	.....	"	.....	H. S. Seiler	.....	.....	"	.....
D-2	Assembling	.....	.....	"	.....	"	.....	.....	.....	.....
D-3	Winding	.....	.....	"	.....	R. W. Leuckart	.....	.....	.....	.....
E	Coils & Ins.	.....	.....	.....	.....	Thos. Lawton	.....	.....	.....	.....
G-1	Punch	.....	.....	.....	.....	C. Coombs	.....	.....	W. Strang	.....
H-1	Blacksmith	.....	.....	.....	.....	J. H. Dexter	.....	.....	.....	.....
L-7	Millwright	.....	.....	.....	.....	H. S. Chappell	.....	.....	J. Duncan	.....
P	Transformer	.....	.....	Jno. Kaufman	.....	D. W. Yarlett	.....	.....	.....	.....
S-4	.....	.....	.....	"	.....	.....	.....	.....	.....	.....
S-5	.....	.....	.....	"	.....	W. M. McGraw	.....	.....	.....	.....
T-8	.....	.....	.....	.....	.....	H. S. Chappell	.....	.....	.....	.....
W-5	.....	.....	.....	.....	.....	W. E. Bailey	.....	.....	.....	.....
W-S	Warehouse	.....	.....	.....	.....	Jno. Moffatt	.....	.....	.....	.....
Test	.....	.....	.....	.....	.....	G. F. W. Sims	.....	.....	.....	.....

Division and Department	In General Charge	Foreman	Assistant Foreman	Chief Clerk	
Stores					
Stock Specifications	A. S. Duncan, Storekeeper	.....	.....	O. H. Morgan	.....
Monthly Lists and Abstracts	" "	.....	.....	Walter Johnston	.....
Stock Orders and Genl. Orders	" "	.....	.....	A. Thomas	.....
Invoices	" "	.....	.....	S. J. Love	.....
Ledger Balances and R. and I. Statements	" "	.....	.....	C. W. Maratta	.....
Shipping Reports	" "	.....	.....	G. C. Taylor	.....
Storeroom A	" "	W. Pass	.....	.....	Fred Phelps, Stockman
" C	" "	"	.....	.....	J. Killops, "
" D	" "	"	.....	.....	Jno. Wetzig, Stockman
" E-1	" "	"	.....	.....	W. Bell, "
" E-2	" "	"	.....	.....	J. Zimmer, "
" E. F. M.	" "	"	.....	.....	F. Hughes, "
" F-Cable	" "	"	.....	.....	J. Killops, "
" F-C. R. Steel	" "	"	.....	.....	" "
" G-Copper	" "	"	.....	.....	J. W. McKelvey, Stockman
" G-Sheet Steel	" "	"	.....	.....	" "
" H	" "	"	.....	.....	J. Moos, "
" K	" "	"	.....	.....	E. L. Morrow, "
" Lumber	" "	"	.....	.....	J. Strang, "
" Lumber Scrap Box	" "	"	.....	.....	W. Carrier, "
" Oil	" "	"	.....	.....	J. H. Williamson "
" Plumbers	" "	"	.....	.....	A. Pearson, "
" S	" "	"	.....	.....	J. P. Stubbins, "
" Y	" "	"	.....	.....	J. Stoughton, "
Returned Material	" "	G. Seath	.....	.....	D. A. Ryan
Receiving	" "	W. Pass	.....	.....	Geo. Seath
Duplicating	" "	A. Thomas	.....	.....	H. L. Worthington, Stockman
Marble House	" "	W. Bell	.....	C. W. Maratta	.....
Shipping W. S. 1	S. E. Marks, Shipper	.....	.....	.....	H. E. Greenwood, Inspector
Warehouse " 2	W. H. Reinherr, Ass't Shipper	R. E. Long	.....	.....	J. J. Bell, "
B. and D. Packing and Loading " 3	" "	.....	.....	.....	.....
P. and R. Packing and Loading " 4	" "	G. E. Long	.....	.....	.....
Crane Shed " 5	" "	Gen. Foreman	.....	.....	.....
Box Shop " 6	" "	W. Lawson	.....	.....	.....

Division and Department	In General Charge	Foreman	Assistant Foreman	Chief Clerk	
Inspection Department	L. E. Schumacher, Chief Inspector L. Forrester, Asst. Chief Inspector	.....	.....	W. F. Ward	.....
Defective Accounts	" "	W. R. Overholt	.....	.....	.....
Castings and Process Specs.	" "	J. F. Spengler	.....	.....	J. A. Zetwo A. L. Patch
Steel, Iron, Tanks, Forgings, Pipe & Fittings	" "	V. K. Williams	D. Crissinger	.....	A. L. Barnhardt, Matl. Inspector
Carbons, Iron, Steel, Lamps, Switches	" "	"	.....	.....	C. Junker, " "
Porcelain, Rubber, Glass, Cloths and Papers	" "	"	.....	.....	J. A. Staley, " "
Marble, Slate, Soapstone	" "	"	.....	.....	H. W. Rothrauff, Matl. Inspector
Resistance Straps, Copper, Oils, Paints, Acids	" "	"	.....	.....	J. J. McCabe, " "
Bolts, Nuts, Screws, Nameplates, Bare Wire and Cable	" "	"	.....	.....	.....
Magnet Wire, Lamp and Heater Cords	" "	"	.....	.....	A. R. Page, " "
Vulcabeston, Cable, C. R. Steel, Extruded Metal	" "	"	.....	.....	M. Campbell, " "
Switchboard and Small Motor Details	" "	"	.....	.....	H. Pearce, " "
Lumber	" "	"	.....	.....	R. T. Benner, " "
Foremen of Inspectors report to Chief Inspector.			.....	.....	N. E. Thompson, " "

INSTRUCTIONS NO. 4

TOOLS AND PATTERNS

SMALL TOOLS:
- Method of Ordering
- Tool Sheet System
- Tool Check System

LARGE TOOLS:
- Method of Ordering

MACHINE TOOLS:
- Method of Ordering
- Method of Recording

PATTERNS:
- Method of Ordering

SMALL TOOLS

Definition of Small Tools:

Small tools can be classified into three groups as follows, (a) all standard hand tools carried in stock, including hammers, drills, files, taps, etc., which do not bear a tool number, (b) special tools of small sizes, such as milling cutters, special drills and reamers, and jigs and fixtures, which bear a tool number and (c) special tools forming a part of the equipment of various machine tools, which do not bear a tool number.

Where Kept:

Small tool stores are kept in the stockroom in Section "W-4" and in sub tool rooms located in the following sections:

Sub Tool Room	Located in Section	Used by Sections
B	A	A, B, C, D
F	F	F
W-4	W-4	W (ex W_5), P, S, R
W-5	W-5	W-5, G-7, G
P	P	P, C-4, S-6, Y-1
K	K-6	K

Supplies of standard tools, such as are likely to be used by the interested sections, are kept on hand in the sub tool rooms, together with such special tools as are used in those sections. Other tools, and those which are infrequently used, are kept only in the stockroom in Section "W-4," but can be supplied on application to any sub tool room.

Shop Orders for Manufacture and Repair of Small Tools:

All standard small tools are purchased or manufactured on Shop Order No. 60. Special tools are made on Shop Order No. 4, followed by the tool number. Repairs to all small tools are made on Shop Order No. 6, followed by the section letter and department number.

Ordering of New Tools:

When it is necessary to order new small tools one of two methods of procedure is to be followed, namely:

(b) **If the tool is special and is to be given a tool number,** (class a) three copies of Form No. 5184 are to be filled in and sent to the Tool Division, Superintendent's Office, the fourth copy being retained for record. If no tools exist which can be used for the purpose, a tool number will be assigned, one copy of Form No. 5184 returned to the section in order to advise them of

the tool number, and the others sent with an order for the tool to "W-4." Section "W-4," will send to the shop department advice of the completion date of the tool and to the Tool Division Superintendent's Office, advice of the estimated labor and material cost of the tool, giving the labor cost and material cost separately.

(b) **If the tool is standard** (class b), it is not necessary to place a special order for it unless an abnormal withdrawal is to be made. In that case, Sec. W-4 should be notified of the fact, using Form 3624.

(c) **If the tool is special but belongs to a machine tool equipment and is not to be assigned a tool number** (class c), fill in three copies of Form No. 3624, giving the drawing number on which the tool is to be used and, if necessary, a sketch of the tool required, and send two copies to Section "W-4," who will return one copy with a promised date of delivery.

How To Obtain Small Tools:

Each workman who will require the use of small tools can obtain the same by two methods as follows: first, the Tool Sheet System; second, the Tool Check System.

Tool Sheet System. By means of the Tool Sheet a certain number of standard tools are assigned to the workman according to a standard allowance, which may occasionally be modified at the discretion of his General Foreman. These tools are to be kept by him permanently through his term of employment and are limited strictly to those which he will have in use daily. A new employee, or an old employee wishing to obtain additional tools upon his Tool Sheet, should apply to his Foreman who will fill in Form No. 3573, ~~one copy for each kind of tool~~. In exchange for this form, the sub tool room will deliver the tools called for to the workman and Form No. 3573 will be sent to the General Forman's Office of Section "W-4" where, in the case of new employees, two copies of the Tool Sheet, each bearing the serial number assigned to that workman, will be issued. Both copies will be sent to the sub tool room for the purpose of securing the workman's signature, after which one copy is filed in the General Foreman's Office of Section "W-4" and the duplicate copy is filed in the office of the General Foreman of the section in which the man works.

No tools may be specified on a workman's Tool Sheet in excess of the standard allowance without specific authorization from his General Foreman.

Tool Check System. In addition to the tools issued to the workmen on the Tool Sheet, each man is assigned ten Tool

Checks upon which he may temporarily withdraw additional tools. These Tool Checks are to be surrendered to the sub tool room, one for each tool withdrawn. Not more than ten tools may be checked out at the same time to one man.

Tools withdrawn on check must not be retained longer than one week. This is especially true of gauges, micrometers and reamers.

A charge of 15 cents will be made against workmen for each lost Tool Check.

Exchange of Damaged Tools:

Tools that are worn out or broken in service, whether taken out on Check or on Tool Sheet, can be exchanged by use of Form No. 3573 when signed **personally by the Foreman.** This form, presented at the sub tool room together with the worn out or broken tool, will secure the issue of a new tool.

Lost Tools:

The workmen are held personally responsible for tools which have been withdrawn on Check or on Tool Sheet. In the case of lost tools, the Foreman's judgment will be taken as to whether or not the workman should be charged for the value of the tool. In case he is to be so charged, Tool Department, Section "W-4," will notify the Time Department of the value of the tool and the workman's check number, in order that the amount may be deducted from the workman's next pay.

Personal Tools:

In case the workman uses his own private tools, he should not be allowed to bring into the Works **drills** and **taps** of any description.

Settlement of Tool Accounts:

When workmen are quitting the employ of the Company, it is necessary, before they are paid off, to have their tool account properly adjusted. For explanation of the settlement of tool accounts see Instructions No. 1, pages 8 and 9.

Transfer of Tools Between Sub Tool Rooms:

In case a tool is called for which is not kept in the sub tool room at which the demand is made, the latter will use Form No. 3573 to temporarily transfer the tool from the sub tool room in which it is regularly kept.

Notification of Existing Tools Not on Drawings:

It is essential that drawings should bear the tool numbers of all existing special tools in order that these tools may be made use of and to avoid the making of duplicates. Foremen and General Foremen should notify the Tool Department, Super-

intendent's Office, of all cases which come to their notice where tool numbers of existing special tools are not on drawings. Steps will thereupon be taken to have these tool numbers added.

Special Tools Made in Shop Departments:

No tools of any description shall hereafter be made or repaired in Shop Departments.

LARGE TOOLS

Definition of Large Tools:

Large tools include dies, benders, molds, formers, large jigs and fixtures, and all large special tools.

The first four classes are made in W-5 and the other tools are made in Sections "W-4" or "W-5," according to size. When large and heavy they are kept in the section in which they are used. Smaller sizes are kept in the sub tool rooms.

Shop Orders for Manufacture and Repair of Large Tools:

All large tools are manufactured on Shop Order No. 4, time being charged to Shop Order No. 4, prefixed to the tool number. They are repaired on Shop Order No. 6 followed by the section letter and department number.

Ordering of New Tools:

When it is necessary to order new large tools, notification is given to the Tool Division, Superintendent's Office. In the case of moulds and formers, a tool number is assigned by the Engineering Department. In the case of dies, a copy of the tracing is sent to the Tool Division, Superintendent's Office who in turn issues an order to Section "W-4" or "W-5" for manufacturing the tool, sending additional copies of the order to the Accounting Department and the interested Shop Department. A record is made by the Tool Department, Superintendent's Office, of the new tool by class, size, tool number, and drawing number.

In case of all other large tools, the various Shop Departments will, upon the receipt of new drawings, look over the same carefully and send notification to the Tool Department, Superintendent's Office, on Form No. 5184, three copies, showing the number and kind of tools required for each new drawing and the date when the same are wanted. Each copy of Form No. 5184 should show tools applicable to a single drawing.

One copy will be returned to the Shop Department from the Superintendent's Office, giving the tool number assigned, and one copy will be returned by Section "W-4" or "W-5" giving a promised date for completion of the tool.

The tool room making the tool must send to the Tool Division, Superintendent's Office, an estimate of the labor and material cost of the tool, showing each separately.

Delivery of New Tools:

When new tools are delivered to the Section by whom they have been ordered, they should be accompanied by a Finished Material Receipt, Form No. 41. Immediately upon the arrival of this receipt in the Section, the number of the new tool should be marked in ink upon the Shop copy of the blue print to which the tool applies.

This is necessary owing to the discontinuance of the practice of issuing new blue prints showing the number of the new tool when the same has been completed.

MACHINE TOOLS

Manufacture and Repair of Machine Tools:

The manufacture of new machine tools and repairs to existing machine tools will be handled by Section G-7. Repairs costing less than $10.00 can be requisitioned on Form 6806 when countersigned by the General Foreman. For work costing more than $10.00 and not over $20.00, use Form No. 838, which must be approved by the Assistant Superintendent. For work costing over this amount, an E order must be entered.

Record System for Machine Tools:

The following system of recording tag number machine tools will be followed by the Superintendent's Office and others interested:

1. Upon receipt from the Purchasing Department of the contract with Purchasing Agent's order number attached, fill in two copies of Form No. 1968, "Inventory of Machinery in Use," and show thereon name of apparatus, maker, from whom bought, contract number, and P. A. Order number. Send one copy to the Receiving Department and file one copy under "Tools Purchased and Not Received."

2. Upon receipt of tools by the Receiving Department the latter will enter date of receipt upon copy of Form No. 1968 sent them, sign same and return to Superintendent's Office. (NOTE—Receiving Department must keep this copy clean, as it is used for permanent record).

3. Upon receipt of card from Receiving Department enter tag number and location and forward to millwright. Remove duplicate copy from "Tools Purchased and Not Received," enter tag number and location and file under "Tools Received and Not Located," filing by tag number.

4. When tool is located millwright should enter date and signature on card and return to Superintendent's Office. (NOTE—Millwright should keep card clean as it is used for permanent record).

5. Upon receipt of card from millwright remove duplicate from "Tools Received and Not Located," make third card similar to cards No. 1 and No. 2 and fill in one card with complete description. File complete card by tag number. File other two cards under kind of machine and location, respectively.

6. No change is to be made in the use of Form No. 2505, "Machinery Removal Notice." Same should be made out in duplicate.

7. All other records, including the two now kept of Form No. 6172 and the tool book records are to be discontinued.

8. The use of Form No. 4881 and No. 5172 will be discontinued.

PATTERNS

Method of Ordering:

When new patterns are required, tracings showing the new patterns are sent to the Pattern Department, Superintendent's Office, who in turn issues a pattern order, Form No. 4028, three copies being sent to the Pattern Shop, Section "I-2," by way of the section in which the casting is to be used. An additional copy is sent to the Accounting Department. The Production Clerk in the shop office specifies on the pattern order the date when pattern should be completed.

Shop Orders for Manufacture and Repair of Patterns:

New patterns are manufactured on Shop Order No. 8, labor and material being charged to Order No. 8, prefixed to the pattern letter and number. Repairs to patterns are charged to Order No. 9. Alterations to patterns originating in the Engineering Department are charged to Order No. 11. Alterations to patterns originating in the Foundries for the purpose of cheapening production are charged to No. 22.

Delivery of Patterns:

When patterns are completed they are delivered either to the Shipper on Form No. 1284, two copies, or to the Brass Foundry on Form No. 41, three copies.

INSTRUCTIONS NO. 5

INSTRUCTIONS TO INSPECTORS:

Organization
Duties
Records

MISCELLANEOUS INSTRUCTIONS.

INSTRUCTIONS TO INSPECTORS

Organization:

Inspectors in all departments of the Works are under the control of the Chief Inspector. The latter will engage all new Inspectors, will see that an adequate force is maintained in all departments to properly handle the work, and that the discipline of the department is maintained.

Inspection of Quality:

It is the first duty of the Inspector to see that work is performed which is of acceptable quality, with reference to accuracy of dimensions, character of workmanship and general finish. They should also see that the material used contains no defects which will depreciate the value of the finished product.

Performance of Completed Apparatus:

A most important duty of the Inspector is to see that each completed piece of apparatus will operate perfectly and perform the functions required of it. This is especially true of new or special apparatus, in view of the fact that a little special attention given to the perfecting of the first unit built from the new design often saves a large amount of trouble and expense in subsequent manufacture. Each such unit should be brought to the attention of the Chief Inspector when completed and special attention must be given to information and drawings, to the end that apparatus is built in exact accordance therewith and that all changes in information are properly taken care of.

see instructions #6—Page #3 Disposition of m't due to defective design (or) workmanship (or) material (or) paragraph #3

As a preliminary to the inspection of new apparatus, Inspectors must thoroughly familiarize themselves with the requirements of the new design in order that they may properly judge its performance.

Inspection of Quantity:

It is desired that the Inspector shall certify to the quantity of detail parts which have been correctly manufactured. While the method of handling this feature has not been fully determined in all sections, Inspectors are required to assist in every way in perfecting the system by which this can be accomplished.

Approval of Changes in Finish:

Changes which are proposed in finish or workmanship must be brought to the attention of the Chief Inspector promptly so that they may be properly approved. While it is always desir-

able to cheapen the production in any legitimate way, no changes in finish should be allowed without the approval of the Chief Inspector.

Records:

Distinctive stencils are provided so that completed parts may be stamped when approved. Inspectors are required to sign a receipt for all material delivered to the Warehouse and Shipper. Such record should be made as will make it possible to trace any part of completed apparatus to the Inspector responsible for approving it. This should be accomplished either by means of the Inspection Stencil, Inspection Tag, or Delivery Slip.

Changes in Information and Drawing:

When Inspectors have suggestions for changes in design which are intended to facilitate production, they should be taken up with the Foreman and General Foreman and not with the Engineering Department. Changes in design to improve the apparatus and which are not errors should be discussed with the Chief Inspector before being taken up with the Engineering Department. For the method of handling errors in drawings and information, see Miscellaneous Instructions, page 11.

Defective Castings:

The Superintendent of Iron Foundries, together with the Foreman Pattern Maker and Chief Inspector, will visit all departments on the first Monday of each month and the Inspector should be prepared to bring to their attention all defective castings encountered during the month. Occasional visits will also be made by the Superintendent of Steel and Malleable Iron Foundries and the Inspector should be prepared to furnish lists of the most serious troubles with these materials.

In reordering malleable iron and steel castings to replace defective ones, the Inspector must furnish the Chief Clerk with a sketch showing the location and nature of the defect so that the Foundry may be properly advised in replacing the casting.

E. D. Sketches:

E. D. Sketches are sent to the Shop when it is desired to forward additional information in a hurry. They are free from the usual restrictions, except such as will insure proper filing and record. They apply only on the order on which they are received and must be accompanied by a Bill of Material, providing any material is to be ordered from them. No office reference or fire proof copies are kept on file.

Insulation Test Boxes:

Only those especially authorized are permitted to use test boxes for the reason that they are dangerous to life if not properly handled. No apparatus should be tested without first disconnecting all wires leading away from it. If the person making the test cannot readily keep all passersby from danger, he should secure the necessary assistance to that end before making the test. The operator should always bear in mind, in making a test, the danger connected with the use of high voltage apparatus.

Process Specifications:

Inspectors must familiarize themselves with the method set forth in Process Specifications and no deviations should be allowed therefrom without written authorization from the Research Division, Engineering Department.

Repairing of Defective Apparatus in Stock:

When it becomes necessary to alter or repair stock apparatus before shipment, the Chief Inspector should be notified He will then make a request of the Storekeeper for an order on which to draw out and alter the apparatus.

Engine Shaft Fits:

In case any discrepancies exist in the press fit of engine type shafts, they must be brought to the attention of the Chief Inspector before the work proceeds so that the responsibility for the error may be properly placed.

Reports of Attendance:

Inspectors on both the hourly and monthly roll will forward weekly to the Chief Inspector, a report of attendance, using Form P-6436. In making out Form P-77 and P-78 at the entrance on entering or leaving the Works at other than regular hours, monthly Inspectors will use the word "Inspection" in the place showing the Department, omitting any mention of specific sections.

MISCELLANEOUS INSTRUCTIONS

Standard Finishes:

In sending material to Paint, Polishing, and other Finishing Departments, the requisition accompanying the material should specify the finish by finish number only.

The finish number should be found on all new drawings. On old drawings which do not specify the finish number, the

Department sending the material should refer the matter to the Engineering Division having in charge that class of apparatus, and obtain from them the desired finish number. In case that Division in the Engineering Department is unable to give the necessary information, the matter should be referred to the Research Division.

In case any questions arise as to the character of the finish specified, which are not settled by the Process Specifications on file in the Finishing Department, the matter should be referred to the Research Division where there is on file a complete list of finishes and specifications and a sample board showing the various kinds of finish.

The various Finishing Departments must insist upon the finish being specified by number only.

Truing up Commutators and Collectors:

All rotating parts having commutators and collectors, except the smaller sizes, must be put in a lathe after test and commutators tightened and both collectors and commutators trued up. In doing this the shafts, particularly of the journals, should be made to run true by a micrometer indicator before the cut is taken. Special care must be observed to keep chips and cuttings out of the windings. The above must be done with care in view of the expense attendant upon truing up these parts after machines are installed.

Hydraulic Press Records:

Records of the diameter and pressure used on all armatures and shafts of 5 inch diameter and larger, must be made on Form No. 6501 and sent to the Engineering Department for file.

Keeping the Sections Clean:

From time to time in the past it has been necessary to institute a general cleaning up of the different departments of the Works for the purpose, not only of disposing of surplus and obsolete materials, but also to do away with the accumulation of rubbish around benches, in cupboards, etc.

It should be thoroughly understood by all concerned that the Works can be much more economically kept in first class condition by a daily cleaning up, than by permitting an accumulation of rubbish and materials which cannot be immediately made use of. Such a daily cleaning up when properly carried out will result in a great economy of material and expense.

The Foreman will hold each bench and tool man directly responsible for tools under and around his bench and in his cupboard.

Chief Clerks should see that surplus and defective materials are taken up promptly for disposition before there is any opportunity for loss of identification.

Protection of Apparatus in Process of Manufacture:

All persons in authority in the shop, including Inspectors, are requested to see that apparatus in process of manufacture is properly guarded against injury. All windings should be kept away from machine tools or fitting work where chips or cuttings are likely to lodge in them. When trucks are being loaded they should see that apparatus is not injured.

Allowance for Oil, Waste, Etc.:

In order to limit the use of certain classes of expense materials, a list of which is given below, each section and department of the Works is assigned a monthly allowance of each of those materials for which they should have use. Within this allowance the materials can be drawn on Shop Orders 14-1, 14-2, 14-3, or 111, as the case may be, using the regular Expense Materials Requisition Book, Form P-775. For amounts in excess of this allowance, the authority of the assistant Superintendent or Manager of the Department is required.

The materials which are upon an allowance basis are as follows:

1. Alcohol
2. Benzine
3. Carbon-oil
4. Castor-oil
5. Colonial Spirits
6. Cutting Compound
7. Gasoline
8. Glycerine
9. Graphite
10. Greases
11. Lead (White)
12. Oils
13. Tallow
14. Turpentine
15. Vaseline
16. Waste

Suggestion System:

For the benefit of those who have devised means of improving any of the processes of manufacturing employed in the Works, a method has been provided of bringing the suggestion to the attention of the department management. Such suggestions when made to an immediate superior, are sometimes overlooked through carelessness and no action taken upon them. In order that the suggestion may receive proper consideration, Form No. 7614 has been provided and can be obtained by anyone, whether foreman, inspector, clerk, or workman, who has a beneficial suggestion to make.

This form provides for a complete description of the present and proposed method of doing the work, together with the saving in cost which it is estimated will result therefrom. It should be made out in three copies; one copy to be handed to the Foreman or General Foreman of the Department or Section, one copy to be forwarded to the Head of the Rate Department, and the third copy to be retained.

At the bottom of the slip a space is provided for the approval of the following persons, in the order named: Foreman, General Foreman, Assistant Superintendent, Rate Department, Manager of Works. The original copy of the form should be passed through the various hands indicated, as promptly as possible, each one either indicating their approval or stating on the back of the slip the reason for disapproval.

Within a reasonable time if the Rate Department does not receive the original copy corresponding to each carbon which they have previously received, steps will be taken by them to locate the original copy and see that it is put through. This avoids the possibility of any suggestion becoming lost or overlooked. After each slip has been through the various hands indicated above, and in case the approval or disapproval is not unanimous, the suggestion will be referred to a committee who will make a final decision as to its adoption and will notify the person making the suggestion of the result.

It is the intention that by this means a record will be made of all those who are actively interested in cheapening and bettering the Company's output, which record can be used when considering promotion and advancement.

Use of Raw Material and Part Stock:

It is the business of the Stores Department to have the necessary material, both raw and finished, on hand when needed and to see that the various departments of the Works are supplied with sufficient material to meet their requirements.

It is also a part of their duties to see that this material is not issued in larger quantities than required and that it is not issued for repairs, improvements, or for any purpose other than manufacturing, without the proper requisition or authority.

Stockmen will be expected to question the withdrawal of materials in unusual and unwarranted quantities from their storerooms, and also to keep themselves so informed of the disposition and use of materials on the floors which they supply that they can bring to the attention of the foreman the accumulation of material in larger quantities than needed, and with the foreman's consent have the same returned to the storeroom.

Care should be exercised by the stockmen that no material is withheld or withdrawn from the floor which is actually needed. All doubtful cases should be referred to the foreman, whose judgment shall be final unless reversed by the Storekeeper or Assistant Superintendent.

Foremen are expected to co-operate with the Stores Department in its effort to keep down the floor stocks of material and to reduce the consumption of supplies, and will furnish the

Storekeeper and stockmen with such information concerning the use of material as they may ask for. Special attention is called to the fact that the above instructions, in relation to the duties of stockmen, are not intended to relieve foremen from the obligation of keeping their floors clean and preventing waste of all kinds.

In case style numbered parts have been withdrawn from stock in excess of requirements and it is necessary to return them to the storeroom, they should first be sent to the inspector, who will make sure that the style number under which they are returned is correct, and will attach to the material an inspection tag, giving the style number together with the signature of the inspector.

Witness Tests:

The following is the practice which should be followed by the Works whenever witness tests are to be made.

(1) Before it is decided to make witness tests, the Correspondence Department will communicate with the Engineering Department as to the feasibility of tests asked for by the customer, except where standard routine tests are called for. In all cases where special provision will have to be made by the Works for carrying out the proposed tests, the Engineering Department should take the matter up with the interested Works Department in order to reach a definite understanding as to what can be done to satisfy the customer.

(2) When witness tests have been agreed upon, notification will be sent to that effect by the Correspondence Department to both the Engineering and Works Departments.

(3) After having been notified by the Correspondence Department that witness tests are to be made, the Works Department will notify the Testing Department and the Inspection Department in order to enable these departments to secure from the Engineering Department the necessary information regarding tests, guarantees, etc., in ample time to make preparations.

(4) In sending this information to the Testing Department, the Engineering Department should send copies to the Manager of the interested Works Department and also to the Chief Inspector if any very unusual or special requirements are made.

(5) Based upon this information, the Testing Department will make a rehearsal covering the requirements of the witness test and the Inspection Department will make a thorough inspection of the apparatus. After this has been done and the Engineering Department has approved the rehearsal test, the Testing Department will notify the Works Department that the apparatus is ready for witness test in the customer's presence.

The Works Department will then notify the Correspondence Department to that effect and the latter will communicate with the customer and advise the Works Department of the date set for the witness test.

(6) Upon the arrival of the customer's representative, he will be received by the Correspondence Department and referred to the Engineering Department. The test, to be made as previously agreed upon, will be discussed by the customer's representative and representatives of the Correspondence and Engineering Departments, in the presence of a representative of the Testing Department. If only routine tests are required no such discussion will be necessary and the Engineering Department can immediately refer the customer's representative to the Testing Department.

(7) Any questions as to methods of testing, interpretation of requirements, guarantees, etc., which may come up during the progress of the witness test should be referred by the Testing Department to the Engineering Department for adjustment.

Weekly Report of Absentees:

A report must be rendered weekly to the Salary Record Division of the Accounting Department, giving the names and pass numbers of all monthly employees who have been absent from the Works, except on Company business, for one or more days. This record will be compiled by the Chief Clerks of all departments having Chief Clerks, and by the General Foreman, Foreman or Heads of other departments. Reports must be rendered from all departments listed below.

As a basis for this report, all monthly employees, except those who are not required to sign out and in at the gate, must hand in weekly to their superior a copy of Form No. 6436. From these records a list will be made, in each of the departments mentioned below, of those who have been absent for one or more days during the week and forwarded to the Salary Record Division of the Accounting Department on the first day of the succeeding week. This record from each department will include a statement of absences of those General Foremen, Chief Clerks and other monthly men connected with the department who are not required to fill out Form No. 6436, as mentioned above.

The Salary Record Division are authorized to continue monthly employees on salary for a period of one month in case of illness, and in specially deserving cases not to exceed six weeks, at the discretion of the proper executive head.

Reports must be rendered from the following departments:

Manager of Works Office,	Shipping Department,
Superintendent's Office,	Engineer of Works Department,
Inspection Department,	Employment Department,
Rate Department,	Apprentice Department,
Storekeeping Department,	Watchmen.

SECTIONS

A, F–1	H	O–4	W–4
B	I–1	P–1–5	W–5
C, S, P–8	I–2, O–5	P–7	W–7
D	L–1–2–3–5–6–8	R	Dynamo Test
E	L–4	T, K, W–8, Y	Detail Test
F–2–3–4	L–7	U	
G–1–2–3–4–5–6	M–1	W–2	
G–7	O–1–2–3–6	W–3	

The reports from the shop departments will be grouped as indicated above, one common report being rendered by the various departments in a group. Copies of the report should also be sent to the Assistant Superintendent in charge of the department.

Use of the Industrial Railway:

In order to effect the transfer of material between departments at a minimum cost, the industrial railway should be made use of wherever possible. Trucking should only be resorted to between those sections not served by the industrial railway, or in special cases where a trip must be made at some time other than the regular industrial schedule.

Each shipment of material transferred from one department to another by means of the industrial railway must be accompanied by form P-1001, Form P-1002, or a scrap tag, Form P-666.

In those cases where there is a paper transaction connected with the transfer of material, the papers shall be sent with the shipment of material. To this end, oiled duck "Transfer Bags" have been provided to hold and protect all the papers for any shipment. When delivery slips, or Form 41, are sent with material on the industrial railway, the carbon copy shall be returned to the sender by means of the shop mail. Clerks having charge of shipping material on the industrial railway should use some check method to make sure that all the receipts are returned to them.

The transfer bag containing the papers shall be attached directly to the material by means of a strap provided. By attaching the transfer bag to the material rather than to the car it will be possible, should occasion arise, to shift material

from car to car or from car to floor without danger of losing the papers.

As a guide to the industrial railway train crews, Form P-1002 shall be filled out with the names of the receiving and sending departments, by letter and number, and placed in the pocket made for it on the outside of the transfer bag.

If there is no paper transaction, the transfer bag need not be used. Transfer tag, Form P-1001, shall then be used. It shall bear the names of the receiving and sending departments and shall be tied in a conspicuous position on the material to be transferred.

Scrap tags, Form P-666, shall be used exactly as heretofore. They are sufficient shipping instructions in themselves and need not be accompanied by transfer tags or transfer bags.

The industrial railway train crews shall refuse to move any shipment of material between departments unless it is accompanied by a transfer bag and Form P-1002, a scrap tag, Form P-666, or a transfer tag, Form P-1001. If shipment of material on a car is properly accompanied by one of the three forms specified, the train crews will be justified in assuming that the shipment is completely loaded and they may move the car to the destination given without questioning the sending department.

Loaded cars going into a department reached only by elevator shall be delivered on to the elevator by the train crew. If there is no regular elevator man, the car may be left as near the elevator as the arrangement of tracks will permit. Loaded cars going out from a department reached only by elevator, shall be delivered by the employees of that department to the ground floor so the cars may be seen and taken out by the train crews.

Transfer bags, and also Form P-1001 and Form P-1002 will be distributed by the industrial railway. They will be carried on the engine and may be obtained from the train crews on request. Since the transfer bags are costly, you are requested to aid in seeing that they are kept in circulation and that they are not accumulated in out of the way places where they would be useless.

A rack on which to hang transfer bags will be furnished each department having need for it. Each transfer bag received shall be placed on this rack.

Empty industrial cars and empty cans for iron and steel turnings may be obtained by telephoning to the Industrial Railway Foreman. If he is not in, leave a message stating the number of cars or cans desired.

A small amount of planning by each person should permit the industrial railway to do away with a very large number of

unnecessary special trips now made by hand truck. All scrap material going to the Brass Foundry and the Crane Shed should be sent by industrial railway. The industrial railway should also be used for sending to the yard old lumber and packing boxes to be dismantled.

The quality of the service on the industrial railway depends almost entirely on the support given by those using it. Your attention is especially called to the fact that cars must be loaded and unloaded promptly.

Errors in Drawings and Information:

The following course of procedure should be followed in communicating with the Engineering Department relative to errors in drawings and information. Cases of this kind may be divided into two classes: first, those in which complete information can be transmitted to the Engineering Department by means of a note; second, those in which it is impossible to make a written explanation and it is therefore necessary to take the matter up verbally with the interested engineer.

In the first case, the note should be written on Form No. 7154 addressed to the Engineering Department, attention of the head of the interested division. Mention should be made at the beginning of the note of the class of apparatus involved: as for example, Auto Starters, Type "S" Motors, etc.

Form No. 7154 is issued in book form, three copies, the first two being perforated. The original copy should be sent to the Engineering Department, Clerical Division, the second copy should be removed from the book and filed with the stock order information, and the third copy should remain in the book. In view of the fact that heretofore copies of such notes have usually been filed with the stock order, it has been impossible to check up from time to time to see whether communications to the Engineering Department have received proper attention. It is the intention, by having this form bound in books, to furnish a means by which a periodic check can be made to see whether communications to the Engineering Department relative to errors have received proper attention and have been replied to.

For those cases in which a reply from the engineer is not necessary or expected, the note should be marked "For record only." In all other cases the Clerical Division will see that a reply is returned to the works.

In the second case above, i.e. those requiring verbal explanation, a note should be written prior to or immediately after taking the case up with the Engineering Department verbally and this note should refer in all cases to the verbal conversation. This will avoid all controversy relative to verbal communications which are apt to be overlooked or forgotten.

Crane and Sling Chains:

Chains and hooks which are a part of travelling cranes must, while in service, be annealed at intervals not greater than twelve months. Load chains on all other types of cranes and hoists must be annealed at similar intervals. Sling chains and hooks of all descriptions must be annealed at intervals not greater than six months.

In order to provide a definite period and avoid the necessity of keeping individual records of each sling chain the following periods have been appointed for the annealing of sling chains and hooks in various parts of the works.

West shop, including No. 23 crane, first two weeks in January and July.

East shop, first two weeks in February and August.

Stores and Shipping Department, first two weeks in March and October.

Section "L" and all other departments, first two weeks in April and November.

See Cir. 317 **Reports of Apparatus Found Defective on Test:**

In order to arrive at an accurate distribution of the charges for apparatus found defective on test, all such cases will be referred to the Committee on Defective Apparatus, consisting of one member each from the Engineering, Sales and Works Departments. This committee will consider each case of apparatus found defective on test and determine whether the charges therefor should be made against 68, 69 or 70.

In order that the committee may be furnished with the necessary information regarding such cases, the Tests Departments will make a report of all defects discovered by them, using Form P-1102. Whenever a piece of apparatus proves defective, three copies of this form will be filled in; one copy being sent to the assembling department of the Works, one to the Chief Inspector and the third retained by the issuing department.

Such a report shall be made for each separate piece of apparatus found defective, whether built on the same or different stock orders, and for each different defect found on any one piece of apparatus. In the case of defects which have already been reported upon and repaired and in which the repairs have not remedied the defect, no separate report need be made.

In making the report the stock order number should be placed in the space marked "Charge Preliminary," followed by the letters A, B, C, etc. "A" being for the first defect discovered, "B" for the second defect, and so on. "Upon the detection of a defect requiring the issuing of Form No. P-1102 the apparatus must be tagged on the Test Floor with a Defective Apparatus Tag (Form No. 954) bearing the stock order number and sub-letter corresponding to the report.

The Assembling Department, in ordering repair work of this class, done by other departments must be sure to give them the defect letter to be used as a subscript to the stock order, using Form No. 838, and each dismantled part must be identified by a tag showing the stock order and sub-letter, when it is sent to another department.

Extra work slips (Form No. 6657) must be used where extra work is spent on sub-letter defects, (see also Intructions No. 2, page .....) and **all time reports must show the sub-letter** as well as the stock order number."

When the cause of the defect is finally determined by the Committee on Defective Accounts, the latter will issue an additional copy of Form 1102, marking in the space for "Charge—Final," the specific shop order, 68, 69 or 70, together with a number indicating the classification of the apparatus involved. This copy will be forwarded to the Accounting Department marked for Chief Cost Clerk, and all time turned in against that particular sub letter will be thrown to the shop order indicated.

INSTRUCTIONS NO. 6

HANDLING OF SCRAP

Importance of Proper Disposition of Scrap Materials.
Summary of Shop Orders Affecting Scrap.
List of Forms Used.
Use of Scrap Tags.
Disposition of Bill of Material Scrap.
Disposition of Short Ends.
Disposition of Surplus Material.
Disposition of Materials Due to Defective Design, Workmanship or Material.
Disposition of Obsolete Apparatus.
Disposition of Materials from "X" Orders.
Disposition of Materials from "C," "RX" and L. & M. Orders.
Disposition of Materials from "E," "18" and other Shop Expense Orders.
Disposition of German Silver Scrap.
Disposition of Scrap Punchings.
Disposition of Hard Drawn, Wire or Sheet Copper, Brass, Etc.
Disposition of Alloy Scrap.

HANDLING OF SCRAP

Importance of Proper Disposition of Scrap Material.

There are in general, two methods by which material which has been brought onto the floor of the Works for manufacturing purposes and has become a part of the Work in Progress Account, and also other special accounts called Foremen's Accounts, may be taken out of the factory and out of these acounts. The first method is by converting it into salable apparatus or parts and delivering it to the stores, or to the warehouse, accompanied by a delivery report. The second is by converting it into scrap. It is equally important that a proper record be made of the transaction, whether the material is removed from Work in Progress by one or the other method, for if this is not done properly the Work in Progress Account will continue to grow indefinitely without a corresponding actual increase in the amount of material on the floor. This illustrates the necessity of keeping strict account of the scrapping of all materials.

Summary of Shop Orders Affecting Scrap.

Scrap removed from the floor must be charged to one of the following **shop orders.**

S. O. 68—Scrap occasioned by **defective design** or Engineering Development.

S. O. 69—Scrap occasioned by **defective manufacture,** or errors in factory or storeroom clerks.

S. O. 70—Scrap occasioned by **defective material,** including iron or brass castings when made by our own foundries.

S. O. 72—**Surplus Material,** due to over production, or material which has lost its identity.

S. O. 73—**W. P. M. Scrap.** Short ends, clippings, etc., not included in the weight, quantity or measurement given in Bill of Material.

S. O. 74—**B. M. Scrap.** Material included in the quantity, weight or measurement given in Bill of Material. This includes turnings, chips, etc.

S. O. 130—This order covers extra labor or material which belongs either on S. O. 68 or 69, but where there is a reasonable doubt as to the exact distribution of the responsibilty. Before applying this order to any particular case, written approval must be obtained from the specially appointed representative of either the Engineering Department, or Manager of Works Office.

Forms Used in Disposing of Scrap.

Scrap must be disposed of by the use of one of the following forms:

Scrap Tag Form P-666. For material having scrap value.

Form P-853. For material having no scrap value.

Scrap sheet Form 6639. Used by the Materials Disposition Department.

Use of Scrap Tag, P-666.

Materials other than turnings and chips (S. O 74) and having a scrap value must always be sent to the Scrap Department, on Scrap Tag, Form P-666 unless they have been referred to the materials Disposition Department.

There is one exception to this rule in the case of S. O. 74 scrap which does not require the use of a regular Scrap Tag but may be accompanied by a plain manilla tag or some other identifying mark such as the section number on box or can. This is for the purpose of advising the Scrap Department what section the material comes from. One copy of a scrap tag must accompany each lot of material. On orders 68-69-70 and 130, responsibility for making out the scrap tag rests with the Inspection Department. These tags must be signed by the Inspector, Foreman and Head Clerk. On all other orders, responsibility for making out the tag rests with the Foreman and Clerk. Tags for 72 and 73 material must be signed by the Foreman and head Clerk. Tags for 74 material must be signed by the head Clerk.

These tags accompany the material to the Scrap Department at which point the original is detached and sent to the Accounting Department, the carbon being returned to the section from which the scrap originated, to be filed with the stock order for reference.

Use of Form P-853

Material having no scrap value, such as slate, marble and soap stone when of a size too small to cut down for other work, also wood, glass, insulating material, etc., should not be accompanied by Form P-666. The charge against the scrap account and the credit to W. P. M., for such material is made by means of Form P-853 which is filled in in duplicate by the Departmental Clerk, the original copy being sent to the Accounting Department and the carbon filed with the stock order for reference.

Use of Scrap Sheet Form 6639.

This form is used by the Materials Disposition Department in disposing of surplus material on S. O. 72. See page 5 under the heading of "S. O. 72 Surplus Material."

S. O. 68—Defective Design or Engineering Development.

No material should be scrapped on this order, except on the written permiss on of the Engineering Department.

S. O. 69—Defective Workmanship.

In scrapp ng material on S. O. 69, care must be taken to specify the section and department responsible for the defect. The shop order No. 69 must be followed by an apparatus classification number. This number is shown on a schedule supplied to the Inspector by the Defective Accounts Committee and enables the Accounting Department to classify all S. O. 69 charges according to apparatus.

S. O. 70—Defective Material.

The shop order S. O. 70 must be followed by the apparatus classification number in the same manner as explained above for S. O. 69. Care must be taken to specify the foundry responsible for the defects in the case of castings.

S. O. 70—Defective Materials from Outside Manufacturers.

When materials purchased from outside manufacturers, except C. S. and M. I. castings, are found defective in the process of manufacturing, they must in all cases be reported to the Materials Inspection Department on Form No. 653, giving, if possible, requisition, drawing, style and stock order numbers The materials themselves should be returned to the storeroom from which they were drawn, accompanied by a Defective Tag, Form No. 954, on which the nature of the defect is plainly stated. By this means only will the Materials Inspector be able to investigate and obtain proper credit from the Manufacturer. Reordering such materials on Shop Order No. 70 is not in itself sufficient to obtain credit.

Special care must be taken in reporting defective materials from outside manufacturers in order that the description may be accurate in every particular.

S. O. 71, Lost Material.

Material used to replace lost material shall always be reported on Form P-853.

S. O. 72—Surplus Material.

By surplus material is meant (**a**) material in excess of requirements or (**b**) material from **reduced** or **cancelled orders.** Such material is designated by the shop order No. 72, prefixed to the stock order number, when the latter is known.

a—Material Ordered in Excess:—When the loss involved in scrapping a given lot of material, i.e. the difference between the Work in Progress value and the scrap value, is less than $25.00, such material may be scrapped by using Form P-666 as provided below under the head of "Short Ends." When the scrap loss exceeds $25.00 the disposition of material must be referred to the Materials Disposition Department, using Form P-863. This department will dispose of the material, either by issuance of a Scrap Sheet or by using Form P-666 which they will fill in, sign and send to the shop department to be attached to the material in question and delivered to the Scrap Department. (See also "Disposition of Obsolete Apparatus," page 6).

Note.—Material ordered on manufacturing information in excess of original requirements should be charged to 68; if so ordered by factory clerks, it should be charged to 69.

b—Cancelled or Reduced Orders:—Materials from these orders should **always** be reported to the Materials Disposition Department for disposition by Scrap Sheet regardless of amount of loss.

S. O. 73—Short Ends.

By short ends is meant scrap material resulting from the ordinary processes of manufacture but not covered by the Bill of Material. The value of this material is deducted from Work in Progress when it is sent to the Scrap Department. Such material is designated by Shop Order No. 73, prefixed to the stock order number, when the latter is known.

S. O. 74—B. of M. Scrap.

By Bill of Material Scrap is meant materials provided for on the Bill of Material in excess of actual requirements and necessarily wasted in the process of manufacture; as for example, chips and turnings, material allowed for cutoff in screw machine parts, etc.

Inasmuch as this material appears on the Bill of Material, it is automatically removed from the Work in Progress Account when the apparatus is delivered, since the material value at which apparatus is credited to Work in Progress, on completion, is obtained by the Accounting Department from Bills

of Material. For this reason no further deduction is made from the Work in Progress Account when Bill of Material Scrap is delivered to the Scrap Department.

It is exceedingly important that material on this order be kept unmixed and as clean as possible. Frequently the mixing of a few pounds of copper and brass with a 25-ton car of steel turnings causes a loss of as much as $2.00 per ton on the car. (See also Disposition of Alloy Scrap, page 7.)

It is also important to keep material sent to the garbage furnace free from copper, etc., as we constantly find a large percentage of copper in the ashes, which is a loss to us and which can be overcome by careful watching in the sections.

S. O. 130.

This is treated just the same as S. O. 68, except that charges to this order are authorized only by an appointed representative of either the Works or Engineering Department.

Disposition of Obsolete Apparatus.

All completed apparatus on the floor which is obsolete, or which is no longer needed, obsolete apparatus in shipping and storeroom stock, and obsolete machine tools and fixtures, must in every case be referred to the Materials Disposition Department, who may issue a Scrap Sheet or Form P-666 as the case may be.

Disposition of Materials From "X" Orders.

Materials for disposition on "X" orders should be handled in all respects the same as for regular stock orders, except that the prefix "X" should be used in addition to 68, 69, etc.

Disposition of Materials From "C," "RX," "L. & M." Orders.

Materials on "C," "RX" and "L. & M." orders, which are part of the original apparatus and are necessarily scrapped due to the nature of the work to be done, should be disposed of on Form P-666 or P-853, and credited direct to the order, using no other prefix than "C," "RX" or "L & M," respectively. If however materials are to be scrapped due to defective design, workmanship, etc., occurring after the entry of the order, the numbers 68, 69, etc., must be prefixed and they should be handled as provided above.

Special care must be used by each section to report materials on "RX" orders not later than the completion of the order in that section, since billing prices are dependent on such reports.

Disposition of Materials on "E," "18-" and Other Shop Expense Orders.

Materials to be scrapped on the above orders should be credited direct to the order, using only the shop expense order number in addition to the department letter and number.

Disposition of German Silver Scrap.

Provision should be made in departments handling German silver to keep this material in the departments instead of sending it to the Crane Shed. One box should be provided for 18 per cent and one for 30 per cent German silver.

Departments will be expected to cut off all soldered ends before putting the materials in their various boxes, so that German silver will be absolutely clean. The soldered clippings from the German silver may be sent to the Crane Shed and the clean German silver will be boxed in the departments for shipment.

Scrap Punchings.

In making out scrap tags for punchings, or when referring the same to the Materials Disposition Department, the die number, drawing number, item number and S. O. number should be given to assist in identification.

Disposition of Hard Drawn, Wire or Sheet Copper, Brass, Etc.

When scrapping sheet or strap copper, brass, phosphor bronze and similar materials, they should not be classed as alloys but should be described on the Scrap Tag as "sheet brass," "strap copper," "phosphor bronze wire," etc. Tinned copper strap should not be mixed with other copper and the scrap tag should be marked "Tinned copper strap."

Disposition of Alloy Scrap.

To assist in the disposition of alloy scrap, the following description of the different alloys will be useful.

ALLOY No. 1 (Cast Copper)—This alloy is used for terminals, collectors, clamps, switchboard work, dampers, resistance rings, etc., and is easily distinguished on account of its having the red color of ingot copper. Millings and fine copper turnings are to be known as No. 1-A turnings, while heavy copper turnings are to be known as No. 1-B turnings. These two classes must not be mixed.

ALLOY No. 2 (5% Conductivity Metal)—This alloy is used chiefly in resistance rings, and gives hard, tough turnings of a much lighter color than brass and has a silvery appearance.

ALLOY No. 3 (2½% Conductivity Metal)—This is used chiefly in resistance rings and gives hard, tough turnings of a much lighter color than brass, being very similar in appearance to those of No. 2 Alloy.

ALLOY No. 4 (Yellow Brass)—This alloy may be mixed with No. 5 Alloy, but shall be kept separate from all other turnings. This is a yellow brass, and turnings as a rule are not as long or as tough as those from Alloy No. 5. This alloy is used for brush holders and for nearly all general brass castings. Under it are included all turnings and millings from rolled yellow brass, Muntz metal, Tobin bronze, extruded metal, etc.

ALLOY No. 5 (Red Brass)—Turnings from this alloy may be mixed with and returned as Alloy No. 4, but shall be kept separate from all other alloys. It is used for certain end bells, resistance rings, etc. It is red brass, and may be distinguished from Alloy No. 4 by the turnings being lighter and tougher and of a red color.

ALLOY No. 6 (High Strength Bronze)—This alloy is used for turbo end bells, dampers, clamps, brackets, castings for catenary construction, etc., where great strength is required. It has a golden color and usually gives very long, tough turnings. Great care must be used to keep chips of alloy No. 6 separate from chips of all other alloys, especially from Alloy No. 4.

ALLOY No. 7 (Hard-Bronze For Gears)—This alloy is tough and hard, and used to a limited extent for gears and pinions only.

ALLOY No. 8 (Soft Bearing Bronze)—This alloy is used exclusively for bearings, and may be distinguished from Alloy No. 9 by the ease with which it is machined. The cuttings are very fine and of a crumbly nature, with a dull grey color, and are exceedingly heavy.

ALLOY No. 9 (Hard-Bronze Bearing Metal)—This alloy is a hard bearing bronze and is used exclusively for bearings. The turnings from this alloy resemble in color those from No. 8, but the No. 9 turnings are much harder and tougher and the castings are harder to machine than the No. 8.

ALLOY No. 10 (White Brass)—This alloy is used largely for rings, covers, etc., and gives short, brittle chips. Great care must be taken to keep this alloy separate from Alloys No. 11 and No. 12, which are especially detrimental to it.

ALLOY No. 11 (Aluminum Zinc)—This alloy may be mixed with turnings from Alloy No. 12, but shall be kept separate from all other alloys. These turnings may be distinguished by their lightness, their color being that of aluminum.

ALLOY No. 12 (Cast Aluminum)—This alloy may be mixed with turnings and used as Alloy No 11, but shall be kept separate from all other alloys. These turnings may be distinguished by their lightness, their color being that of aluminum.

ALLOY No. 13 (Pattern Metal)—This alloy is a tough, white brass used for metal patterns only.

ALLOY No. 14 (A-1 Babbitt)—This alloy is a high grade, high priced babbitt lining of a white color, and its turnings have greater toughness than those from Alloy No. 25. All drosses and sweepings shall be returned as Alloy No. 14 dross. It is used only for lining brass shells and such iron shells as demanded by the customer. It is standard for railway work.

ALLOYS Nos. 15, 19, 20 and 23 (Solders)—Drosses and turnings from these alloys shall be returned as solder dross. Special attention is called to the necessity of keeping solder dross separate from babbitt dross.

ALLOY No. 16 (Grid Metal)—Broken grids and scrap from this alloy must be kept separate from cast iron grid scrap and must be returned marked "Alloy No. 16 Grids."

ALLOY No. 17 (Filling Metal)—This alloy is used for casting brush holder pads, filling holes, etc., and is about the color of lead.

ALLOY No. 18 (Babbitt)—This alloy is more brittle than No. 14, and has a leadish color. Alloy No. 18 chips must be kept absolutely free from brass or copper chips, since even a slight amount of copper makes Alloy No. 18 worthless for further use. Alloy No. 18 drosses must be kept entirely separate from Alloy No. 14 drosses and from solder drosses.

ALLOY No. 19—Solder used for filling in the bottom of transformer tanks. See Note under Alloy No. 15.

ALLOY No. 20—Solder used for coating leads. See Note under Alloy No. 15.

ALLOY No. 21—A resistance metal bought from outside parties.

ALLOY No. 22 (MONOTYPE METAL)—Used only by the Publication Department.

ALLOY No, 23—Solder used for pot soldering railway armatures. See Note under Alloy No. 15.

ALLOY No. 24—This alloy is very similar in appearance to Alloy No. 6. It is used where the metal must be forged or drawn to shape. Chips from Alloy No. 24 may be mixed with chips from Alloy No. 6, but must be kept separate from chips of all other alloys.

ALLOY No. 25 (STANDARD BABBITT)—This alloy is used for filling all iron bearings except those for which No. 14 is specified. Alloy No. 25 scrap must be kept separate from other alloys.

INSTRUCTIONS NO. 7

TIMEKEEPING

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CHECKBOARDS

1. Time of Closing and Opening:

Checkboards must be closed and locked promptly after the last whistle has blown, and not opened until within three minutes before the whistle blows at quitting time.

2. Checks to be Removed From the Board:

Workmen leaving the Works at noon must take their checks with them and replace them before the boards are again locked for the afternoon. All checks must be removed by the workmen when going home for the day. See Rule No. 10 under "Checkboards" for penalty.

3. Time to Read Checkboards:

(*a*) The checkboards shall be read in the morning between 8:30 and 9:00 o'clock and in the afternoon immediately after the last whistle blows, and at night immediately after 6:00 p.m., and after midnight. A time clerk from the Section must take the 6:00 o'clock reading and shall record both night turn and overtime; and in those Sections where a night turn clerk is not located, a Watchman will take the after-midnight reading.

(*b*) An extra copy of the checkboard readings is to be made on Pay Day mornings and is to be called for before noon by a representative of the Paymaster's Department.

4. How to Read Checkboards:

(*a*) On account of the great amount of trouble that results from errors in the checkboard readings, special care must be exercised to see that as few mistakes as possible occur. The reading must be carefully marked to show a vertical line through the spaces opposite all numbers where the checks **are not** on the board, the spaces to be left blank opposite all numbers where the checks **are** on the board. After the reading is taken it shall be checked over and a dot put in each blank space to indicate that the check has been read the second time. As a still further check, count the number of men at work as indicated by the blank spaces on the reading and the number of checks on the board and see that these counts agree, noting this number on the reading. When a reading shows a man working one-half of the day and not the other half, investigation must be made at once to see that it is not a case of forgetting to hang check.

(*b*) In departments where a night turn is worked, a reading shall be taken in the manner described above immediately after 6:00 p.m., and after the midnight lunch hour; these readings to be shown in the last two columns of the same blank that the day

reading was reported on. The report of those working the first part of the night and not shown as working after midnight will serve as an additional check on the overtime as covered by overtime passes. When a night reading shows a man working all night who is also shown as having worked all the preceding day, an investigation shall be made to make sure the man was at work and that it is not a case of a day man having "left check hang."

5. Workmen to Hang and Remove Only Their Own Checks:

No workman shall hang on or remove from the checkboard any check but his own. Violations of this rule must be reported.

6. Identifying Workmen as Shown by Checkboard:

(*a*) On irregular dates to be designated by the Superintendent of the department, the time clerk must personally identify on the floor each workman whose presence is indicated by his check appearing on the checkboard.
(*b*) Irregularities discovered by this check must be reported to the Superintendent of the department.

7. Workmen to Have Only One Check:

(*a*) No workman shall have more than one check, and violations of this rule must be taken up by the foreman.
(*b*) Workmen must not be permitted to hang on the board a piece of paper or other substitute for a check longer than two or three days. If a workman's check is lost or missing the Chief Cost Clerk will order a new check by note direct from the Pay Roll Division, and the workman will be charged 25 cents for same. If the missing check is later found the Chief Cost Clerk can forward the extra check to the Pay Roll Division and arrange to have the 25 cents refunded to the workman.

8. Issuing Checks:

See INSTRUCTIONS No. 1, "Method of Employing Check Men."

9. Forgot to Hang Check:

(*a*) When a workman reports any time within a half hour after the last whistle blows, that he "forgot to hang his check" he is to be considered one-half hour late and reported on board reading as described under the heading "Lates." When such a report is made **any time later than a half-hour after the last whistle blows** (even if one or more days later) the time clerk must ascertain positively from the foreman that the man was at work on time and must write "F. H. C." after the workman's check number on the board reading for the date in question as notice

to the Chief Cost Clerk that the value of one hour at his hourly rate must be deducted from the workman's pay for that date.
(*b*) When the above correction is to be made later than the date on which the workman "forgot to hang his check," the foreman must sign a note to the Chief Cost Clerk certifying that the man was at work on the date in question. ~~Both copies of the board reading must be corrected based upon this note.~~

10. Left Check Hang:

When it is learned that a workman forgot to remove his check from the board when going home for the day, the time clerk either must mark the board reading for the date in question or notify the Chief Cost Clerk **in writing** to mark it "L. C. H." to show that the workman left his check hang. The value of one hour at his fixed hourly rate is to be deducted in each case where the workman left check hang.

11. Lates:

(*a*) Workmen must be reported on the checkboard readings as late when their checks are not on the board when it is locked after the last whistle blows; lates to be indicated on the reading by showing opposite the workman's check number the time he reported for work.
(*b*) One-half hour is to be deducted when the workman is late one-half hour or any length of time less than a half-hour; one hour when he reports anywhere from one-half hour to one hour late; and one-quarter hour for each 15 minutes thereafter. For example: A workman reporting at 8:05 a.m., shall be marked on the board readings as starting work at 8:15 a.m.
(*c*) The first time slip taken out by a workman reporting late, where possible, should be marked "Late" on its face and checked off to show as the time started the time that will agree with the notation on the board reading.
(*d*) In case a workman is late, whether a premium, day or piece-worker, his time slip for that date should cover only the time worked, i.e., the regular time less the deduction for being late. This is the only deduction made in the case of premium and day-workers; but in the case of piece-workers, who will be paid in full for the number of pieces completed, a fine will be deducted based upon the time late and the workman's hourly rate, ½ hr. fine if not more than ½ hr. late and 1 hr. fine if more than ½ hr. late.
(*e*) Upon certain dates to be designated by the Manager of Works, the Watchmen will collect the time check of each workman coming into the Factory after the last whistle in the morning. The checks collected before the first half-hour late (for example, before 7:30 a.m.) will be put in one envelope and

those collected within the next half-hour will be put in a second envelope, and after that a separate envelope to be used for each quarter-hour. The checks collected in this way will be sorted to Divisions and turned over to the Chief Cost Clerks for investigation to see if there is in any instance a duplicate hanging on the board of any of the checks collected by the Watchman, if the checks turned over in this way agree with the "lates" reported on the board readings or if any other irregularities are disclosed by this plan; these irregularities to be reported to the Manager of Works Department. "Lates" who get into the Works but not to the Checkboard before the last whistle will, of course, be handled as formerly upon dates that this plan is operated.

12. Apprentices Attending School:

(*a*) **Trade Apprentices** will carry their checks while attending school. Immediately upon their arrival in the department in which they are employed they must hand their checks to the time clerk who will hang them on the board after making a record of the irregularity on the board reading. The checkboard record for these irregularities should be marked the same as for other "lates" and 9:00 o'clock should be the time indicated as the time "in." Any students reporting to the time clerk later than 9:00 a.m. shall be reported to the foreman, and board reading marked to show the time reported. Educational Department shall furnish Chief Cost Clerks of the different Divisions with a report of Trade Apprentices attending school at each session, properly indicating all lates so that proper deductions may be made. Time of Trade Apprentices while attending school shall be charged to S. O. 129.

(b) **Engineering Apprentices** who will attend school a half day will carry their checks with them, and before leaving their department for school will obtain from the department time clerk a time slip made out to cover the time they will be at school, this time to be charged to S. O. 127. These time slips will be presented at the school and will be O. K.'d by the school stamp and signature to indicate the time put in at school, and will be presented to the department time clerk when the apprentice returns to work in the shop; the time clerk to see that these slips are properly stamped and signed and will make his checkboard readings agree. Should one of the engineering apprentices leave the Works early while attending school, the school authorities will issue a regular Left Works Pass, form P-1787, signing their own name but showing the Works Department in which the apprentice is employed so that the pass will be returned to that department.

13. Workmen Leaving the Works Before the Regular Time:

See Rule No. 6 under "Passes."

14. Indicating Deduction on Time Slips:

See Rule No. 7 under "Time Slips."

15. Keys:

Checkboard keys **must** be kept in the time clerk's desk. A duplicate set of keys for all checkboards in the department should be kept in the Chief Cost Clerk's Office.

TIME SLIPS

1. Checking Time "Out" and "In":

(*a*) When a time slip is given to a workman starting on a job, the starting time must be checked off at the nearest quarter-hour or noted on the slip, and when the slip is turned in the time the job was finished must be checked off or noted in the same way. The time checked "out" and "in" **must be compared** with the amount of time shown on the slip by the workman.

(*b*) If a slip covering a job on which a man is working is temporarily turned in while he works on another job, the time the slip is turned in and the time that it is later again taken out must be noted on the back of the slip, and these breaks in the time must be taken into consideration when later checking the time reported on the slip by the workman with the time checked off.

(*c*) In order that correct costs may be obtained, it is proper that jobs taking less than one-quarter hour to perform be checked to show the actual time taken instead of the nearest quarter-hour.

2. Writing and Handling Slips:

(*a*) All time slips must be written in a legible hand. Where the workmen fill out their own slips the time clerk must see that they can be easily read.

(*b*) The slips must be filled out in full as indicated by the form: Workman's name and check number, order number, pattern, item and drawing numbers, limit and limit number, and the operation and the name of the part. The department number and letter also must be **printed** or **stamped** on each slip. Also, when the slip leaves the Time Clerk the date, number of hours worked each day and time the slip was checked "out" and "in" must be plainly shown, as well as the number of pieces completed and the serial numbers if the work is performed on serials.

(*c*) All slips must be shown "Complete" or "Incomplete."

(*d*) A workman shall be permitted to have out only one time slip at a time. When a man is temporarily taken off one job and put on another—(See Rule No. 1-B under "Time Slips.")

(*e*) A time slip should not cover work on more than one stock order, where this can be consistently avoided.
(*f*) When work is performed in such a way that a part of the time on a time slip covers labor chargeable to a defective account (for example, where a man works 6 hours on 20 castings and three of the castings were defective and a part of the time therefore chargeable to S. O. 70) the time clerk must transfer to a separate slip the time chargeable to the defective order.
(*g*) Time slips showing jobs completed in time that is noticeably **less than the ordinary amount of time taken** must be referred to the Foreman and Limit Setter, as the method of doing the work may have been changed or new tools made which justify an adjustment of the time limit on the job.
(*h*) Time slips showing **overrun limits,** that is where the time expended on the job is in excess of the total limit time, must be referred to the foreman for his "O. K."
(*i*) Time slips covering day work must be stamped "Day Work" with a rubber stamp in the space provided for the limit. Slips covering day work must be passed upon by the foreman or limit setter before being sent to the Cost Office.
(*j*) All time slips must be in the Cost Office at the **earliest possible moment** after the completion of the job.
(*k*) A workman who performs any premium work at all must not, under any circumstances whatever, be permitted to work day work on a Shop Expense Order, except S. O. 68, 69, 70 or 71, unless authority to do so is first obtained from the Superintendent of the department. Time clerks shall co-operate with the foreman in seeing that this rule is not broken. Time slips on work of this class that is properly authorized shall bear the foreman's personal signature.
(*l*) Time slips of a workman who is allowed an **especially high hourly rate** on account of being worked day work on a premium operation should show the limit and limit number in the regular way and be stamped immediately under the limit: "Special Hourly Rate—No Premium" with a rubber stamp. Such slips must be figured as straight day work.
(*m*) Where a workman has **two hourly rates,** one a special high rate to be allowed only when a certain class of work is to be performed, the time clerk in the department must show the man's rate on the time slips as he is in the best position to confer with the foreman regarding the rate that applies to the individual jobs. Foremen must sign all slips where the high rate is used.

3. Incomplete Jobs:

(*a*) Copies must be made of all time slips on jobs that are incomplete at the close of the last day of the pay. These copies should be exact duplicates of the originals, except that, instead of showing the dates and the time for each date, the total amount of time shown on the original slip shall be shown on the copy in the place provided for "hours paid on account."
(*b*) The originals or incomplete slips, turned in must be shown "Incomplete," marked no (0) pieces completed and sent to the Cost Office, **being first posted** to the labor cost records in the regular way, except that the posting will show no (0) pieces completed and will be marked "On Acct." Incomplete jobs are to be paid for as "day work."
(*c*) The copy of the incomplete slip will be given to the workman when he again starts on the same job and will be checked off and handled the same as if it were the first slip on the job.
(*d*) When the copies of incomplete slips, showing "time paid on account," are turned in showing the job completed they should be posted on the labor cost record in the same space in which the incomplete slip was previously posted in order that the record of labor may be complete and that it may be seen that the incomplete job was finished, the time posted from such slips being only the **additional** time put on the job.
(*e*) "Paid on Account" slips must not be allowed to accumulate. The foreman shall be kept in touch with these jobs, especially any comparatively small job that is held as "Incomplete" during an entire pay period.

4. Company Jobs:

(*a*) When two or more men work together on a job, the time slip of each man must show in the proper space the check numbers of the other men working on the job. The time must be posted to the labor record to indicate that the operation was performed as a "Company Job," and the slips must be fastened together when sent to the Cost Office, the lowest check number on top; the number of pieces to be shown on the leader's slip only.
(*b*) When one man finishes a job for which another man was "paid on account" in a previous pay, the copy of the incomplete slip that is being held on file must be attached to the slip given to the man who is to complete the job, each slip being properly marked to show the check number of the other man who worked on the job.
(*c*) Foremen will not place apprentices on company jobs with regular workmen unless they are familiar with the work. Where apprentices are put on company jobs their time must be charged against the job the same as if they were regular workmen, and they are to share in the premium or piece-work bonus.

5. Posting:

See Rule No. 2 under "Labor Cost Records."

job. In order that the stock order cost will not be shown too low in cases of this kind, the Chief Cost Clerk should see that time slips in such cases are valued at the average cost for performing the operations in question and this amount shown on the labor record; these slips, however, are not to effect the pay roll in any way.

EXTRA WORK AND EXTRA WORK SLIPS

1. Writing and Handling Slips:

(*a*) Extra work slips must be filled out in every particular. In addition to indicating whether the work is to be performed Premium or Day-Work, the extra work slips marked "Day-Work" **when made out,** must also show the estimated time required to complete the operation; upon completion of the operation the time taken as shown by the time slip must be compared by the time clerk with the previously estimated time, and all cases must be referred to the Foreman where the estimated time has been over-run to any extent.

(*b*) The rate man should keep in touch with this extra work situation and look into those cases where he feels that the estimated time is placed too high.

2. Where a Time Slip Turned in Covers Time Chargeable Both to a Straight Order and An Extra Work Order:

(See Rule No. 2-F under "Time Slips.")

3. Posting Labor:

(*a*) Extra work can be posted in two ways: when authorized by an extra work slip attached to the time slip and when authorized by notations made on the labor record from scrap tags.

(*b*) When it is necessary either to perform an operation the second time or to perform an irregular operation chargeable to "68," "69," "70," etc., where the part has not been scrapped and the work is being done on the original part, the foreman must issue an extra work slip which must be attached to the time slip.

(*c*) Where a casting or part is scrapped the **scrap tag** must in every case be turned over to the time clerk who will note on his labor record under each operation completed before the part was scrapped, the Shop Order number ("68," "69," "70," etc.) on which it was scrapped and will post the time slips for these re-operations without an extra work slip, but time slip must show proper prefix. Where **work is done on serials** the above notation will be made under the proper operations for each serial scrapped. Where **serials are not used** the above notation with the number of pieces scrapped will be shown under the proper operations. The scrap tag must be initialed by the time clerk when it has served his purpose, and it must not leave the department until it is so initialed.

(*d*) If an operation is partly completed when a part is scrapped, the incomplete operation should be charged to extra work, and the time charged to the straight order when the operation is again performed.

(*e*) Posting extra work time on a job where straight time has been paid. (See Rule No. 2 under **"Supervision of Defective Accounts, etc."**

OVERTIME

1. Basis of Payment:

Number of overtime hours worked at one-and-one-half times the fixed hourly rate.

2. Full Day To Be Worked Before Overtime Begins:

The overtime turned in by any workman on a day when he was late in the morning or at noon or when for any other reason he did not work the regular number of working hours (9¾ hours Monday to Friday and 5¼ hours Saturday), will be accepted to show overtime for only the time worked over and above the regular number of hours for the day. In other words, a man must work 9¾ hours on a regular day and 5¼ hours on Saturday before overtime is allowed.

3. Janitors:

Janitors will not receive pay for overtime until they have worked 70 hours per week.

4. Powerhouse:

Powerhouse and other special employes receive overtime only after the completion of the number of hours per day for which they are hired.

5. Overtime Worked on Premium Jobs:

Premium made while working overtime is based upon the regular day-work rate of the workman. Overtime worked on premium jobs shall be treated as regular working hours in determining the time saved, and the only addition made to the premium earned because of overtime having been worked shall be the value of the number of overtime hours worked at one-half of the fixed hourly rate.

6. Overtime Worked on Piece-Work:

No overtime bonus shall be paid workmen who work overtime on piece-work.

SHORTAGES

1. Claims for Shortage:

(*a*) Workmen shall use Form 2391 in making claims for shortages in pay; the form to be handed to the time clerk who, after seeing that it is properly made out, will forward to the Pay Roll Division. The Pay Roll Division must check over the workman's pay in all cases where a shortage is claimed and return the claim through the Chief Cost Clerk with notation explaining shortage or non-shortage.

(*b*) Claims for shortage shall be sent to the Pay Roll Division not later than the day after pay day, and Chief Cost Clerks will endeavor to have this rule enforced.

(*c*) When a shortage or over-pay from a previous pay is included on a workman's account sheet, Form P-3054 must be attached covering the amount and explaining the discrepancy; the total of the amounts shown on the time-slips and on Form P-3054 to be in agreement with the amount on the account sheet.

RATES

1. Special Hourly Rates:

See Rule No. 2-L, under "Time Slips."

2. Re-Rate Cards:

See under INSTRUCTIONS No. 1.

FOREMAN'S REQUISITIONS

1. Posting Labor:

Labor performed on work covered by a Foreman's Requisition must be posted on the back of the green copy of the requisition, and the requisition number must be shown on the time slips.

SHOP EXPENSE ORDERS

1. Shop Expense Orders:

Time clerks must become familiar with the more common Shop Expense Orders and must refer to the instructions on these orders in all cases of doubt. It is very important that all expense labor, as well as all expense material, be charged to the expense order to which it properly belongs; and time clerks must use care in showing Shop Expense Orders on time slips. Foremen and others shall co-operate in seeing that this is properly handled.

LIMITS

1. Handling Limit Slips:

Time clerks must number the limit slips, Form 6801, that are made out by the Limit Setters. A book containing the series of limit or operation numbers assigned by the Chief Cost

Clerk to the Works Department is to be kept by the time clerk, and a brief record (Drawing No. and date) noted therein opposite each number assigned to a limit slip.

2. Writing of Limit Cards:

(*a*) The time clerk must record on the limit card each limit written up by the Limit Setter, exercising special care that the record is properly made, the correct time, correct drawing, pattern, item and operation numbers shown, and that the operation reading is shown the same as on the limit slip and not abbreviated so as to make its meaning doubtful.

(*b*) All limit cards must be legibly made out in **ink** complete; no pencil records to be made.

(*c*) When limit slips have been transferred to limit cards both the cards and slips shall be turned over to another clerk to certify to the accuracy of the transcription by initialling opposite each limit.

3. Scratching Limit Cards:

No scratching, erasing or changing is to be done on limit cards, unless each such case is explained on the back of the card by a notation signed by the time clerk, the notation to explain the change and reason for same. These changes to be O. K'd by a second clerk as noted under Rule 2.

4. Time Slips Showing Excessive Premium:

See Rule No. 2-G under "Time Slips."

5. Over-Run Limits Shown on Time Slips:

See Rule No. 2-H under "Time Slips."

6. Special Limits:

Special limits allowed by the Limit Setter, not appearing on the limit card and for which no limit slip was made out, must be identified on the time slips and labor records by the "Special Limit Number" that is assigned to the Section; and each time slip bearing a special limit **must** have the Limit Setter's and foreman's personal signatures on its face. Special limits are not to be recorded on limit cards.

RECORD OF EMPLOYES

1. Employment, Transfer, Re-Rate, Dismissal, Etc.:

See "Method of Employment, Dismissal, and Transfer of Employes" under INSTRUCTIONS No. 1.

PASSES

1. Making Out Form P-1787:

(*a*) This form is to be used for the purposes indicated on its face and must be handled as described below.

(*b*) It must be made out in **ink** in all cases, must show all necessary information and must be signed personally by the foreman when made out.
(*c*) The date, section number, department number and check number must be filled in and a cross placed in the proper space, all of which is to be done when the pass is made out. When the workman stops work, the time is then to be inserted by the Foreman who will write his initials under same.
(*d*) The watchman at the exit will lift these passes from the workmen and immediately stamp them with the time-stamp showing the time the workman passed through the exit.
(*e*) The Cost Office will compare the "stopped work" time with the time stamped by the Watchman and if the Watchman's time-stamp is prior to the "stopped work" time, or a sufficient amount of time had not elapsed between the "stopped work" time and the time leaving the Works to allow the workman to get to the exit, the pass shall be immediately reported back to the department for investigation.

2. Overtime, Regular, Form P-1787:

When a workman is to work regular overtime, from 6:00 p.m., any working day except Saturday and from 1:00 p.m. Saturday, he must be given pass P-1787 with a cross (X) properly shown in the blank space for indicating "Regular Overtime." If the workman is to start overtime **after** the regular time noted above for beginning "Regular Overtime", the time he is to begin must be shown after "Started" at the top of the pass, and the time he enters the works, as well as the time he leaves, must also be stamped on the back of the pass by the watchman.

3. Overtime, Straight Through, Form P-1787:

When a workman is to work overtime straight through from the regular quitting time, he must be given a pass P-1787 with a cross (X) properly shown in the blank space for indicating "Straight Through Overtime." In case of "Straight Through Overtime" the pass is not to be placed on the board nor given to the workman until after 6:00 p.m. (1:00 p.m. on Saturday).

4. Overtime When Works are Closed, Form P-1787:

When a workman is to work and be paid overtime on Sunday, a legal holiday or any other time when the works are **regularly** closed, he must be given a pass P-1787 with a cross (X) properly shown in the blank space for indicating "Regular Overtime" and the time he is to begin shown after "Started" at the top of the pass. In cases of this kind, however, the pass **must** be stamped by the watchman both when the man comes in and when he leaves the works. Straight through overtime should be avoided in cases of this kind.

5. Admittance to Works, P-1787:

(*a*) When a workman is to work when the works are closed at an **irregular** time and no overtime is to be allowed, (for example, taking inventory when works are closed down for that purpose) he must be given a pass P-1787 with a cross (X) properly shown in the blank space for indicating "Works Closed." The time he is to start work must be shown under the words "Works Closed," and the watchman must also stamp these passes both when coming in and going out.
(*b*) Overtime must not be paid in cases of this kind.

6. Workmen Leaving Early; P-1787:

When a workman is to leave the works before the regular quitting time, he must be given pass P-1787 with a cross (X) properly shown in the blank space for indicating "Left Work." The time "Stopped Work" must be shown and must not be later than the time when the pass is made out and the workman given his check, and must be recorded on the checkboard reading by a notation P. O. (Pass Out) and the time quit work.

7. Admit New Workman; Pass 2655:

See under INSTRUCTIONS No. 1.

8. Admit Workman on Pay Day; Pass P-2596:

When a workman not working on pay day desires to come into the Works to get his money, he should be given pass P-2596. The watchman must take up this pass when he admits the man to the Works and give him a blank receipt to be signed and presented to the Pay Clerk. Workmen coming in for their pay in this way must fall in line before the Pay Clerk after all the regular departments have been paid.

9. Night Turn Pass, P-1154:

(*a*) Workmen on night turn are required to carry a red pass P-1154 as authority to the watchman to admit them to the Works. When a man is hired to work at night, he should be handled as described under "Pass 2655, Admit New Workmen," (Instructions No. 1) the night turn pass to be given him at the same time he is given the brass check.
(*b*) When a night turn man quits, his pass must be collected at the same time as his check by the Pay Master before paying off the workman.

10. Handling Passes:

All timekeeping passes received by the watchmen must be delivered by the Pay Roll Division to the different Cost Offices each morning by messenger. Passes received by mail must be

referred to the Foreman for investigation before overtime bonus is allowed.

ACCOUNT SHEET AND PAY ROLL WORK

1. Account Sheets:

(*a*) Account Sheets, Form P-2520, for the workmen in each department will be blocked out by the Pay Roll Division to show the workmen's name, check number and rate, and furnished at the beginning of each pay period to the Chief Cost Clerk. The latter will see that the work of posting the check-board readings, passes, time slips, etc., is performed on these Account Sheets; the latter shall be attached to the time slips which, together with the board readings and passes, are to be turned over to the Pay Roll Division in time to be incorporated in the pay roll. Before these Account Sheets are turned in to the Pay Roll Division a check must be made to see that the total of the amounts shown on the individual time slips of each workman is in agreement with the amount on his Account Sheet.

(*b*) In order that no discrepancy may exist between the total of the amounts shown on the time-slips and the total of the Account Sheet, the total limit on jobs where the total limit exceeds one-quarter hour should in all cases be extended to the nearest quarter-hour on the time-slips. Where the total limit is exactly half-way between the quarter-hours (i. e., 7½ minutes more or less than the quarter hour) the clerk figuring the slips will endeavor to "give and take" with equal fairness to the workmen and the Company.

2. Pay Roll and Envelopes:

The pay roll and the pay envelopes will continue to be made up in the Pay Roll Division; but to handle the work of making up the envelopes men from the various Sections who make up the Account Sheets will perform this work in the Pay Roll Div., reporting there for this purpose the day before each pay day.

3. Making Up Pay and Paying Off:

Such of the clerks working on time in the different Sections as are necessary will be designated to assist in putting the workmen's pay in envelopes and in paying off, and for this purpose will report to the Paymaster at 9:15 A.M. and 3:30 P.M., as directed.

4. Paying Off Men Leaving the Service:

When workmen are to be paid off in advance of pay day on account of leaving the service, the Account Sheet (in duplicate), together with the time slips, board readings, passes, etc., from which it is made up, shall be sent to the Pay Roll Div. to be audited, together with Form 161 and the proper copy of 870; the Pay Roll Division will approve this Form 161 and forward to the Paymaster with the workman. The messenger taking these papers to the Pay Roll Office should wait and return them to the Cost Office so that all papers going to make up the Account Sheet at the close of the pay may be kept together. If the board readings and passes in cases of this kind cannot be sent to the Pay Roll Division without interfering with the progress of the work in the Section, send in place of them a statement giving the necessary information they cover.

5. Reporting Workmen Off Between Close of Pay and Pay-day:

Not later than 2 p.m. on the day before each pay-day, the Chief Cost Clerk must send to the Pay Roll Division a list of the check numbers of employes in each department in his Division who are shown by the check-board readings as having performed no work since the last day of the preceding pay. This is in order that, as such men may not again return to work, arrangements may be made to have their tool accounts checked up before they receive the money due them.

6. "68" Labor:

In addition to sending to the Engineering Department after the close of each month's business the papers from which is made up the amount shown in the "Material" column of the monthly A, B and C statements as being charged to S. O. 68, the Chief Cost Clerk will arrange to also furnish the Engineering Department at the same time a record of the labor performed within his Section and charged to S. O. 68, the amount thus reported to be in agreement with the figures shown in the "Labor" column of the A, B and C statements and to be reported separately for each stock order.

7. Check-Board Readings and Passes:

The check-board readings and time-keeping passes that are to be posted to the Account Sheets will be sorted to Sections and sent out daily by the Pay Roll Division.

8. Missing Time Slips and Shortage in Time Reported:

When the amount of time turned in by the workman is less than is shown due him by the check-board readings, the Cost Office must notify the Time Clerk in order that the missing time-slips may be furnished before the Account Sheet is closed up.

9. Excess Time Reported:

The Cost Office must return to the Time Clerk for investigation all time turned in for a date on which, according to the board reading, the man was not working. Also time in excess of that shown by the board readings.

RELIEF DEPARTMENT

1. Relief Department Rules:

Time clerks are responsible for the department records of the members and the proper handling of the Relief Department business in the Works, and therefore should familiarize themselves with those regulations of and rules in connection with the Relief Department necessary for the proper handling of members and records, as special attention must, in all cases, be given to Relief Department matters.

2. Department Records:

(*a*) A record of Relief Department members must be kept in each department; this record to show the member's name, check number and Relief Department number. This record may be kept in connection with the card record (P-1053) of all employees working in the department, which should be kept in each department.

(*b*) Notice of new members in a department will be sent the department on Form P-96.

(*c*) In this connection transfer cards must indicate whether or not a workman is a member of the Relief Department, the R. D. number to be shown in all cases of membership; in case the man is not a member of the Relief Department the fact should be noted. The time clerk in the receiving department must complete his Relief Department record and sign the back of the transfer card to show that he has done so. (For handling transfers, see page 9, **(Instructions No. 1.)**

3. Application for Membership:

(*a*) When new men are employed the working of the Relief Department must be explained to them and they should be given an opportunity to join.

(*b*) Men wishing to join should fill out Form P-93; the time clerk shall witness same and forward at once to the Relief Department.

(*c*) The Foremen shall endeavor to induce new employees who have worked two weeks or more, and who will in all probability remain in the Company's employ for some time, to call at the Relief Department and make final application for membership.

4. Reporting Disabled Members:

(*a*) In case a member of the Relief Department is disabled by accident or sickness, a copy of Form P-112 must be issued at once and forwarded to the Relief Department.

(*b*) The Manager of Works office, phone 193, must be called at once in **any case of accident** whether to a Relief Department member or not.

5. Reporting Disabled Non-Members:

In case an employe not a member of the Relief Department is disabled by accident a copy of Form P-112 must be issued at once and forwarded with the patient to the Relief Department. This copy must be marked "Non-Member." Such employes will receive first aid and must join the Relief Department at once in order to receive further treatment from the Relief Department doctors.

6. Danger of Infection:

Owing to the great danger of infection, Foremen or others should not attempt to dress injuries. Send the employe to Relief Department to have the wound washed and properly dressed.

7. Disabled Members To Be Kept On Rolls:

(*a*) Sick or disabled members must not be taken off the pay roll until one week after notification is given by the **Relief Department** that they are able to return to work.

(*b*) Before a workman is to be taken from the rolls on account of having been absent for two weeks it must be ascertained whether or not he is a member of the Relief Department, and if so that department must be consulted by phone to see if the member is off sick or disabled. If the latter is the case, he is not to be taken off the roll unless the Relief Department authorizes such action.

8. Hours for Dressing Injuries:

(*a*) Employees who have been injured and go to the Relief Department for redressing should go at the following hours:

Departments	Hours
Secs. A, B, C & D	9 to 10 a.m.
" E, F, O & Z	10 to 11 a.m.
" G, H, I, K, L, X & Y	11 to 12 a.m.
" P, R & S	1 to 2 p.m.
" M, W & T	2 to 3 p.m.
" W. S., S. K., P. & S. W. & J. General Offices Standard House	3 to 4 p.m.

(*b*) All night employees should report to the Relief Department between 6:00 p.m. and 6:00 a.m. for redressings, as a night doctor is stationed at the Relief Department.

9. Authority of Relief Department:

Foreman in all cases must observe the authority of the Relief Department to send men home from work when sick or injured and to order men to report to the surgeon during working hours in case treatment is necessary.

SUPERVISION OF DEFECTIVE ACCOUNTS, ETC.

1. Juggling:

Foremen, Assistant Foremen and others authorized to approve time slips must prevent "juggling" of time by workmen; and time clerks shall co-operate to this end. If a workman performs both a day-work job and a premium job it must be seen that only the actual amount of time put in on the day-work job is shown on the time slip. Cases where a workman over-runs the limit on one job and makes premium on another particularly must be investigated to see that one job is not being loaded to increase the amount of premium on the other.

2. Additional Work to Complete or Correct:

(*a*) Where a workman has to perform day-work on a part as the result of a premium operation having been incorrectly or incompletely performed, the extra day-work must be added to the time previously charged against the limit by combining the original work and the additional necessary day-work. If this additional work is done by a workman other than the one who reported the original time against the job, this shall be handled as a company job (See Rule 4, Company Jobs, under "Time Slips"). If the workman who originally performed the operation does this extra work, the additional time shall be added to the time previously turned in against the limit. If this change is made before the amount on the original slip is incorporated in the pay roll, the original slip shall be changed; if the change effects a previous pay, correction shall be authorized on Form P-3054.

(*b*) In all cases of this kind the full amount of time taken is to be charged against the limit; the Foreman and Rate Man to decide what part of the total time taken is chargeable to "extra work," and the time slips and posting must show this information.

3. Hourly Rate To Be Paid:

Workmen, except when on piece work, will be paid not less than their hourly rate for the time their checks are on the check-

board and they are known to be in the Works. The deductions for lates, etc., explained elsewhere, are exceptions to this rule.

4. Jobs To Be Considered Individually:

Workmen will be paid the premium made on each job regardless of limits that may be legitimately over-run on other jobs. Transfer of premium from one job to off-set over-run time on another may be made where the Foreman believes the man has juggled his time.

5. No Time To Be Lost Between Jobs:

When one job is completed the workman must go to the foreman immediately for more work, and then turn in his time slip and get out a slip on the new job. The foreman must not tolerate the workmen standing around after a job has been finished; if the workman has been loafing between a job on which he has made premium and a day-work job, the foreman shall see that the time loafed is applied to the premium work.

6. Over-Run Limits:

Foremen must fully appreciate how undesirable **are over-run limits** and **straight time** under the premium system, and must keep in touch with this feature with a view to eliminating it as far as possible.

7. 68-Work:

All work performed on S. O. 68 shall be paid for according to the wage system that applies, i. e., day work, piece work or premium.

8. 69-Work:

(*a*) Where a workman spoils a piece of work and the difficulty is discovered before time is turned in on the operation, if a premium job, the time shall revert to straight day work and the man paid for the time consumed at his hourly rate; if piece work, the workman shall receive no pay for this piece.

(*b*) If the error is not discovered until after time has been turned in and it is a premium job, the same workman shall be given the replace job and his time charged to 69-premium work, and in the event the original operation was done in less than limit time, notification shall be sent to the Cost Office to deduct from that workman the amount previously paid for the bonus time; this must in all cases be explained to the workman. If a piece work operation, the workman shall be required to replace it without recompense.

(*c*) In the event an operation being defective on 69 spoils other operations performed by workmen, other than the man spoiling

the piece, the previous operations when duplicated will be charged to 69 and if they were premium jobs they will be again performed as premium jobs.

9. 70-Work:

Straight day-work shall be paid for the work that has been performed when a piece of apparatus is scrapped on account of S. O. 70 before the completion of the operation or where it is evident that the defect should have been discovered before the operation was completed. The replace operation shall be on the same basis as originally obtained, i. e., premium, piece or day work. Where the original operation was completed and charged to the straight stock order the replace operation shall be charged to S. O. 70.

GENERAL

1. Time Clerks:

Must familiarize themselves with the work of the department, the check numbers of the workmen and the class of work on which the different men work.

2. Records To Be Kept Locked:

All limit cards, labor records, time slips, etc., must be carefully locked in the time clerk's desk at all times outside the regular working hours; the workmen **must not** be permitted to handle these records at any time.

3. Card Record of Employees:

(*a*) A card record Form P-1053, is to be kept for each workman in the department. This record must be kept by the time clerk as indicated by the form.

(*b*) In connection with the rule under INSTRUCTIONS No. 1 in regard to taking from the roll the names of employees who have been absent two weeks, the Pay Roll Division will furnish the Chief Cost Clerk a list of such names after the close of each pay period, to facilitate the work of issuing Forms 870 in all such cases.

4. Premium Workers Not To Work On Expense Day Work:

See Rule No. 2-K, under "Time Slips."

5. E, 17-and 18-Orders:

Time must not be turned in against any E, 17-or 18-order not shown on the latest lists of these orders that are open, as furnished monthly by the Manager of Works.

BOOK
OF
INSTRUCTIONS

WORKS DEPARTMENTS

Westinghouse Electric & Manufacturing Company

East Pittsburg, Pa.